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USSR Report

AGRICULTURE

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USSR REPORT

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MAJOR CROP PROGRESS AND WEATHER REPORTING

JANUARY WEATHER CONDITIONS IN MOSCOW DESCRIBED

Moscow TRUD in Russian 22 Jan 86 p 4

/Article by S. Snegirev: "Cyclone After Cyclone"/

/Text/ January this year in Moscow and the Moscow region has been unusually capricious. At times, there have been winter frosts, slush on the streets and icicles hanging from the roofs. Yesterday morning the residents of Moscow were greeted by a plus temperature, a damp snowfall that closely resembled rainfall and yet the weather turned noticeably colder by noon and by evening the temperature reading was minus 10 degrees. According to the weather forecasters, the cold would intensify during the night and yet during the day of 22 January the air temperature would once again rise to minus 1-3 degrees. What is happening with the weather? We addressed this question to the director of the USSR Hydrometeorological Center A. Vasilyev.

"We are presently observing our fourth cycle of sharp cold weather during January in Moscow" stated Aleksandr Aleksandrovich. "the guilty parties with regard to these contrasts in the weather are the cyclones which move from the Atlantic towards the east. They bring warm weather. In January, an active frontal zone was formed in the European territory of our country. In other words, very low temperatures prevail in the northern part of the territory and in the south -- warm weather. Such a contrast in temperatures stimulates cyclone activity. They develop rapidly and advance at great speed. Thus a sharp cold snap occurs immediately following the passage of a cyclone -- warm air from the Atlantic is displaced by cold air masses from the north. This sharp change in weather that is presently being observed in Moscow is a rather rare phenomenon.

On 22 January, another cyclone will "roll in" from the Atlantic. The cold temperatures which will prevail during the night in Moscow will change to warm temperatures. In addition to an increase in temperature, the cyclone will also bring snow and high winds. With such contrasts in the weather, sharp changes in atmospheric pressure will be only natural. According to the forecasts by specialists, the warm weather will continue in Moscow for 2 days.

Such capricious weather has a noticeable effect on the work of aviators. Indeed, quite often the airfields are closed down owing to snowstorms or strong

gusts of wind. Thus it was only natural for us to want to know the degree to which the civil aviation service was prepared for these cyclones.

"This winter produced many problems for the capital's aviators" we were informed in the Central-Dispatcher Administration for Civil Aviation, "In all of the capital's aviation enterprises, the ground equipment is maintained in a constant state of readiness. Notwithstanding heavy snowstorms, all of the airfield take-off and landing strips are being maintained in operating condition. At Domodedovo, Vnukova, Sheremetyevo and Bykova airfields, operational staffs are in operation which are headed by the leaders of aviation enterprises. Unfortunately however, even the most modern equipment is not always capable of countering the elements. Yesterday, as a result of a strong lateral wind, all of the capital's airfields were closed down. This was associated with safety for the taking off and landing of aircraft. On the night of 22 January, all of the shifts were reinforced. With a change in the wind, the airports of Moscow will commence carrying out a double workload in order to ensure that all of the delayed flights are carried out within a day's time.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BELORUSSIAN FLOOD STAGE FORECAST

Minsk SELSKAYA GAZETA in Russian 30 Mar 86 p 3

/Article by G. Chekan, chief of the Department of Hydrological Forecasts of the Belorussian Republic Administration for Hydrometeorology and Control Over the Natural Environment (BELTA): "What Will the Flood be Like?"]

/Text/ The valley of the Polessk Goryn River was filled with peals of thunder. Under pressure caused by the thaw waters, which were flowing down the hills of the Volyn Height, the strong sheet of ice armor began to break up.

The Yaselda, Pika, Bobrik, Oressa, the upper reaches of the Neman, Shara, Bug and the Mukhavets rivers overflowed their banks. Over the next few days, the movement of ice will commence on the Pripyat River below Turov and on the Berezina River. What will the flood be like?

The overflowing of rivers is dependent upon the amount of autumn moisture in the soil, the depth to which it freezes, the thickness of the ice on the rivers and also upon the amount of snow that falls. The past autumn was a rainy one and thus there is more dampness in the soil than is usually the case. During the winter it froze to 50-70 centimeters and in some areas to a meter. There was also a build-up of ice throughout the entire winter and an especially rapid build-up in February, which turned out to be a very cold month. There was not one thaw period during the entire month. The air temperature was lower than usual by 4-9 and on some days -- by 10-12 degrees. On the Pripyat and Neman rivers, the thickness of the ice reached 35-55 cm., 5-10 cm. more than the average annual figure. The supplies of water in the snow cover in the Dnepr, Sozha and Berezina basins were within the norm and in the basins of the Zapadnaya Dvina, Pripyat and Neman -- 1.3-1.5 times greater than the norm.

During March, weather of an anti-cyclone nature predominated throughout the republic. Considerable changes in air temperature -- from 5 to 10 degrees of frost at night to 5-10 degrees of heat at noon -- promoted the evaporation of moisture during the day and freezing at night. As a result, the snow had already melted in the southern and southwestern portion of the republic and remained only in the forests. On the remaining portion of the republic's territory, the thickness of the snow cover had decreased considerably and amounted to 4-19 centimeters.

The Zapadnaya Dvina, Dnepr and the remaining rivers will overflow their banks during the first few days in April. In all areas the water will overflow the

banks and flood the bottom lands. However, extensive overflowing and the flooding of populated points are not expected. The maximum water levels will be within the limits for the average values established over a period of many years. Ice jams and sharp increases in the water levels are possible in the most flood-prone areas (the Pripyat, Goryn and Ubort rivers) and also along certain sectors of the Dnepr and Zapadnaya Dvina rivers.

Preparations have been made in all areas for the forthcoming flood conditions.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SPRING FLOOD STAGE FORECAST FOR 1986

Moscow IZVESTIYA in Russian 16 Mar 86 p 3

/Interview with A. Zhidikov, deputy director of USSR Gidromettsentr by IZVESTIYA correspondent G. Gayazov; date and place not specified]

/Text/ On rivers in the southern Ukraine and in Rostov Oblast, the ice has already broken up and spring flooding has commenced. What will it be like throughout the country? Our correspondent held a discussion on this subject with the deputy director for USSR Gidromettsentr /Order of Lenin Hydrometeorological Scientific Research Center/ A. Zhidikov.

/Question/ Each spring period has its own particular character. What is the present one preparing for us, Aleksey Pavlovich?

/Answer/ We are expecting high water on rivers in the Volga, Urals, Central, Volgo-Vyatskiy and in the southern portion of the northern and west Siberian economic regions.

/Question/ How high will this be -- a meter or 2 meters above the norm?

/Answer/ In the Volga economic region, for example, on a majority of the rivers in Saratov and Volgograd oblasts -- 1-2 meters. On other rivers -- 0.3-0.7 meters. Considerable flooding of the Volgo-Akhtyubinsk flood-lands is possible during the spring movement of water through the Volgograd hydroengineering complex. In many areas in the central region, the water is expected to rise 0.3-0.7 meters higher than the average and on rivers in Yaroslavl and Kostroma oblasts -- 1-1.5 meters. Roughly the same degree of flooding is expected in the Volgo-Vyatskiy and northern economic regions. On rivers in Sverdlovsk Oblast, the flood water according to our computations will exceed the norm by 1-1.5 meters, in the Bashkir ASSR -- by 0.5-1 meter. The water levels for other rivers in the Urals region will be in keeping with the average values established over a period of many years. The water levels for rivers in Novosibirsk and southern Tyumen oblasts will rise 1-1.5 meters above the norm.

/Question/ What is the situation in eastern Siberia and the Far East? You forgot to mention these large regions and the character of the rivers found there.

/Answer/ Yes, last year the flood water level was high in these areas. But this year the level of the spring flood water on many rivers in the Eastern Siberian and Far East economic regions is 0.5-1 meter lower than the norm. On

rivers in the remaining territory of the RSFSR, this level is expected to be close to the usual figure.

/Question/ Where will the highest flood water be found this year?

/Answer/ On rivers in the Zavolzhye region, the level will be higher than usual by 2-3 meters. And on the Bolshoy Irgiz River, the water level will surpass the norm by 3-4 meters.

High water -- 1-1.5 meters above the average values -- will obviously be found in other areas as well -- on the rivers Vychegda, Vaga, Yug, Unzha, Kostroma, Sura, Tura and Tavda.

/Question/ Are the populated points located along these rivers threatened by these waters?

/Answer/ The high water of rivers in the economic regions mentioned earlier will be accompanied by overflowing and partial flooding of the low sections of the coastal areas of cities and populated points. The operational subunits of Goskomgidromet have informed the party, soviet and economic organizations of Tula, Orel, Kursk, Bryansk, Lipetsk, Kirov, Gorkiy, Vladimir, Ryazan, Ufa and a number of other areas concerning the expected flooding and overflowing of rivers. We will monitor the situation since it may change. For the most part, the rivers will overflow their banks at the usual time. Sufficient time still remains for carrying out the necessary preparatory work.

/Question/ What will the flow of water into reservoirs be like?

/Answer/ According to a preliminary forecast, 10-20 percent more water than the norm will flow into the Volzhsko-Kamskiy and Dneprovskiy cascades and also into reservoirs on the Don, Neman and Zapadnaya Dvina rivers. Conversely, the flow into the Angara-Yenisey Cascade and into the Novosibirsk Reservoir is expected to be 10-15 percent and into the Vilyuysk Reservoir -- 20 percent less than the norm. During the growing season in Central Asia, the flow of water into reservoirs of the Syr-Darya Cascade and also the runoff of the Amu-Darya River -- higher than the Kara-Kum Canal -- is expected to be less than the average value established over a period of many years.

/Question/ More water than usual will enter the reservoirs of the Volzhsko-Kamskiy Cascade. To what extent will this affect the level of the Caspian Sea?

/Answer/ Over the past 8 years, the sea's level has risen by 108 centimeters. This year it will rise even more.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

WINTER STATUS OF LATVIAN CROPS DISCUSSED

Riga SOVETSKAYA LATVIYA in Russian 19 Feb 86 p 3

/Article by L. Borisovskaya, agricultural meteorologist: "Weather and Crops"/

/Text/ Throughout January and the first half of February, the wintering of the winter crops took place under conditions involving unstable and mainly warm weather. During periods of brief cold snaps, the temperature dropped to minus 16-21 degrees and on the night of 21 January and 7 and 8 February -- to 22-25 degrees of frost. On the snow's surface, the temperature was 28-33 degrees lower than zero. Precipitation fell in the form of snow and at times in the form of rain. A great amount of precipitation fell in January: 50-100 millimeters in the majority of regions and 123 millimeters in the environs of Ayzpute, and this conforms to 1.5-2.5 monthly norms.

The winter crops lay under a cover of snow, the height of which was 5-10 centimeters in the western half of the republic, 15-30 on the remaining territory and 35-45 centimeters in the environs of Gayzinkalna. The soil on a large portion of the territory froze to 25-50 centimeters and in the northeastern part of the republic -- to 60-72 centimeters. As a result of the snow cover, the frost did not penetrate deep into the soil. At the tillering node depth for the winter crops, a temperature lower than minus 4-6 degrees was not noted and this figure is considerably higher than the critical values at which the winter-killing of plants is observed.

Frequent thaw periods followed by cold snaps have had an unfavorable effect on the wintering of winter crops. An icy crust has been observed on the soil on fields in a majority of the eastern and a number of western regions.

The raised temperature regime created conditions for a more intensive expenditure of sugars by the plants, as a result of which their winter-hardiness was lowered. The wintering of plants took place in an especially unfavorable manner on the Vidzem and Aluksne heights. Here, as a result of a prolonged snow cover and shallow freezing depth of the soil, conditions for the damping of plants developed.

In early February, the farms and the republic's hydrometeorological station carried out the second inspection during the winter on the status of the winter crops using the sampling method. The results revealed that the thinness of stands in the crops had increased somewhat compared to the previous inspection

period. Of 12,700 hectares of winter rye inspected, 12 percent had raised thinness of stands in the plants and of 12,700 hectares of winter wheat -- 9 percent of the area (last year at this time, the figures were four and six percent respectively). The results obtained in the case of clover reveal that a raised thinness of stand was observed on 5 percent of the area inspected (last year the figure was two percent).

The largest number of thinned out samples of winter crops was observed in Zemgale and on the Vidzem and Aluksne heights. By spring the plants here will be weaker than those in other regions and thus they must be tended in a reliable manner.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

OVERVIEW OF GRAIN CROP PRODUCTION IN NON-CHERNOZEM ZONE

Moscow ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV No 11, Nov 85 pp 4-5

[Article by P. Tolstopyatenko, director of the State Inspectorate for the Procurement of Grain and Seed of Oil-Bearing Crops in the RSFSR Ministry of Procurement: "The Grain of the Non-Chernozem Zone"]

[Text] The Non-Chernozem Zone is an old Russian region. It includes 29 oblasts and autonomous republics with over 60 million inhabitants. Today it is a large industrial region and the center for almost one-fourth of the nation's industrial potential. It is also one of the largest agricultural areas, playing an important role in supplying the population with food products and industry with raw materials. The over 10,000 kolkhozes, sovkhozes and other state farms of the Non-Chernozem Zone produce one-fifth of the grain in the RSFSR, over half of the potatoes, almost all of the flax, two-fifths of the vegetables and milk and many other agricultural products.

In June of this year the CPSU Central Committee and USSR Council of Ministers passed a resolution called, "On Further Developing and Increasing the Effectiveness of Agriculture and Other Branches of the Agroindustrial Complex of the RSFSR Non-Chernozem Zone in 1986-1990."

Thanks to measures taken by the party and government during the 10 years after the passage of the well-known resolution on the Non-Chernozem Zone, over 74 billion rubles of capital investments have been channeled into agricultural development. This was greater than in the preceding period by a factor of 2.2, which enabled us to expand land reclamation, to increase the acquisition of equipment and to significantly accelerate the building of roads, schools, preschool facilities, clubs and medical facilities. The fixed production capital of kolkhozes and sovkhozes doubled.

The material-technical base of procurement organizations and the processing industry was further developed. Dozens of meat combines and large dairy plants, vegetable-potato storehouses and enterprises for the primary processing of flax were built. Thirty-five modern mixed-feed plants equipped with modern equipment were constructed. The capacity of grain-storage facilities and especially of elevators increased significantly. A powerful grain-drying and grain-cleaning industry was developed in all grain-reception and processing enterprises. All of this had a positive effect on the status

of agricultural production and on the fulfillment of state plans for the procurement of agricultural products.

Today in the Non-Chernozem Zone there are more and more enterprises and rayons which have noticeably increased the productiivity of agricultural crops by effectively utilizing state aid. In each oblast and autonomous republic there are many enterprises which produce 30-40 quintals of grain per hectare and more.

In Kolkhoz imeni 50 Letiya SSSR of Kostroma Oblast, persistent and painstaking work is being carried out on the basis of the introduction of leading production technologies, enabling it to harvest 40-43 quintals of grain crops per hectare with stability and to fulfill contractual obligations related to the sale of grain to the state from year to year. Productivity is even greater--50-55 quintals per hectare--in Rodina Kolkhoz of Vologda Oblast. In 1984 Pskov's Pobeda Kolkhoz and Belorusskiy Sovkhoz harvested 32-35 quintals per hectare. Last year Kolkhoz imeni Gorkiy of Pravdinskiy Rayon, Kaliningrad Oblast, threshed 34 quintals of grain per hectare. In 1981-1984 an average of 37 quintals of grain per hectare were harvested from the entire area of Kanash Kolkhoz of Kanashskiy Rayon, Chuvash ASSR.

Many kolkhozes, sovkhozes and village regions reach their plan goals for the sale of grain to the state by raising the productivity of grain crops. The enterprises of Yefremovskiy Rayon, Tula Oblast (acting senior rayon state procurement inspector V. Poluektov) sold the state 186,500 tons of grain in 1981-1984, thereby fulfilling the 4-year plan for grain procurement by 104 percent. Plans for the sale of grain to the state for 4 years of the 11th Five-Year Plan in the full crop assortment were fulfilled by the enterprises of Kamyshlovskiy Rayon, Sverdlov Oblast (senior rayon state procurement inspector Comrade Yaroslavtsev), Polesskovyy Rayon (senior rayon procurement inspector Comrade Milyutin) and Pravdinskiy Rayon (senior rayon state procurement inspector Comrade Kulgeyko) of Kaliningrad Oblast, Glazunovskiy Rayon (senior rayon state procurement inspector Comrade Lavrentyev) of Orlov Oblast and many others.

Within the structure of sowing area in the Non-Chernozem Zone a noticeable place is occupied by winter and spring wheat, the seed of which has little gluten of low quality. Spring wheat is cultivated on over 1.5 million hectares each year. In recent years many of the zone's enterprises have also noticeably expanded the area in winter wheat, simultaneously decreasing the area in grain forage crops. During the 10th Five-Year Plan alone as compared to the ninth the average annual area in winter wheat in the zone increased by 123,000 hectares, and in 1982-1984 as compared to the levels of the 10th Five-Year Plan--by 145,000 hectares. All of this resulted in growth in the production of winter wheat grain and in its procurement for state resources. In 1984 the wheat procurement plan was fulfilled by 110 percent in the zone, which is a great achievement for the kolkhozes and sovkhozes of the Non-Chernozem Zone.

Plans for the sale of grain to the state for 1981-1984 were fulfilled by 108 percent by the enterprises of Moscow Oblast, 103 percent--enterprises of Kalinin Oblast, 121 percent--enterprises of Vologda Oblast, 115 percent--

Leningrad Oblast, 101 percent--Novgorod Oblast, 105 percent--Pskov Oblast, 101 percent--Sverdlov Oblast and 107 percent--Kaliningrad Oblast. This year productivity and grain yield of grain crops in the enterprises of the aforementioned oblasts and active participation in grain procurement enable us to draw the conclusion that plans for the sale of grain to the state during the current year are being fulfilled by these oblasts. This will be a considerable contribution to grain procurement in general throughout the RSFSR.

At the same time, the RSFSR Non-Chernozem Zone is still not fully utilizing by far the rich potential possibilities for increasing the production and procurement of all types of agricultural products, especially grain. Some enterprises, rayons, autonomous republics and oblasts in this zone do not achieve planned productivity or the necessary gross yields that would not only guarantee the fulfillment of procurement plans but that would also satisfy the needs of public livestock raising for grain forage. Many directors and specialists still feel that it is their job to produce coarse and succulent feeds and livestock products whereas grain forage will be allocated by the state.

In 1981-1984 grain production in the zone as a whole increased, but only Leningrad Oblast fulfilled the plan for grain production. During these years underproduction in grain procurement equalled 18 percent. The following enterprises remain the greatest debtors: Orel Oblast, where the 4-year plan has been fulfilled by only 68 percent, Ryazan Oblast--73 percent, the Mordovian ASSR--57 percent, and the Chuvash ASSR--71 percent. The collectives of the kolkhozes and sovkhozes of these oblasts and autonomous republics have forgotten about the first law of the grain farmer.

The basic food crop in the Non-Chernozem Zone is rye, which makes up 37 percent of total planned procurement volume within the republic.

During the 11th Five-Year Plan, and especially in 1982-1984, the production and procurement of rye grain increased noticeably as a result of the passage of a number of organizational-agronomic measures, including first and foremost the expansion of sowing area by almost 700,000 hectares, the introduction of high-yield rye varieties and the raising of procurement prices. Moreover, sowing area expanded and rye production increased in all of the zone's oblasts, which had a positive effect on the procurement of rye. On the average for 1981-1984 57 percent more rye was procured than during the years of the 10th Five-Year Plan.

The experience of many leading enterprises and rayons and many oblasts and autonomous republics allows us to assume that the Non-Chernozem Zone will become a zone that is characterized by the stability of its production and supply to the state of rye--the most important feed grain crop.

At the same time, the enterprises of a number of oblasts are not fulfilling plans related to the sale of rye to the state primarily because of violations of agrotechnology and of the run-down nature of seed farming. In Kirov Oblast only 10-15 percent of all rye fields are sown with first and, in the best of cases, second class seed each year. Many thousands of hectares are sown with

freshly-harvested rye seed which has not had a chance to undergo post-harvest maturation and which is depressed in germination capacity. As a rule, the yield from such seed is lower than from seed of the transitional fund, and if in addition sowing is carried out 10-12 days late enterprises produce about half of the expected yield. A convincing confirmation of this is the significant underfulfillment of the oblast plan for the sale of rye--during the 10th Five-Year Plan it was fulfilled by 49 percent, and in 4 years of the current five-year plan--by 77 percent. It is essential that this oblast's enterprises study the experience of leading kolkhozes and sovkhozes and utilize it.

Many enterprises of the Non-Chernozem Zone have practically curtailed the production of the basic groats crop--buckwheat--in recent years. Moreover, in addition to a decrease in its sowing area, its productivity has dropped in most enterprises. Some of these enterprises do not even collect seed. Prices for buckwheat have always been high and economically expedient. At the present time the state pays 400 rubles for each quintal of buckwheat and also provides incentives through the sale of mixed feeds.

However, in many of the zone's enterprises buckwheat is not given the necessary attention, as before. This occurs because in most oblasts and autonomous republics the dispersion of this crop among enterprises has been tolerated without a consideration of soil and other conditions and because there is an absence of demand to adhere to the proper cultivation technology. All of this has resulted in the fact that buckwheat has become an unproductive crop. Its insignificant sales volume has decreased economic interest in producing it. The directors of both agricultural as well as procurement organs are at fault here.

State procurement inspectorates do not demonstrate principle in evaluating the operations of enterprises which trample upon the interests of the state. They do a poor job in propogandizing the economic indicators of leading kolkhozes and sovkhozes which systematically fulfill buckwheat production and sales plans. Such enterprises exist in Ryazan, Tula, Orel and other oblasts of the Non-Chernozem Zone.

During the 10th Five-Year Plan the buckwheat procurement plan was fulfilled by only 9 percent, in 1981--by only 4 percent, in 1982--by 16 percent, in 1983--by 11 percent and in 1984--by 18 percent. In 1984 Bryansk Oblast sold the state only 100 tons of buckwheat, Smolensk Oblast--30 tons, Kirov Oblast--300 tons, the Chuvash ASSR--200 tons and the Mari ASSR--400 tons.

The inadequate volume of buckwheat grain procurement is also the result of hindering its procurement and of using this valuable crop in significant amounts for internal needs. In Orel Oblast in 1984 29 percent of buckwheat grain produced was sold to the state, in Tula Oblast--32 percent; in Ryazan Oblast the marketability of buckwheat equalled 38 percent and in the autonomous republics of the Volga-Vyatka region--12-20 percent.

Consumers expect directors and specialists of enterprises and agricultural organs as well as us procurers to make especially serious changes in the organization of production and procurement of buckwheat. The senior state

inspectors for procurement and quality of agricultural products in the Mari ASSR (V. Smirnov), the Chuvash ASSR (V. Grigoryev), the Udmurt ASSR (P. Kholmogorova), Gorkiy Oblast (L. Zubarev), Kirov Oblast (V. Petukhov), Kaluga Oblast (V. Kostyshev) and several other oblasts must very carefully understand the situation involving buckwheat production in each enterprise and rayon and must put an end to curtailing sowing area and to allocating the worst soil for buckwheat. They must make sure that the aforementioned autonomous republics and oblasts are not freed of their obligations to fulfill plans involving the production and sale of buckwheat.

The Non-Chernozem Zone is also a region where brewing varieties of barley are cultivated. Although the majority of the area here is sown in brewing varieties, for an extended period of time only Kaliningrad Oblast (senior state procurement inspector V. Kodolov) has been fulfilling the established plan for the sale of this valuable raw material to the brewing industry. There were no noticeable changes during the 11th Five-Year Plan either--in 1981 the procurement plan was fulfilled by 16 percent, in 1982--by 24, in 1983--by 42 and in 1984--by 24 percent.

All of this attests to the fact that enterprises which raise brewing barley in the Non-Chernozem Zone are doing a poor job of carrying out the work of selecting, processing and selling the state barley that is in brewing condition and to the fact that they often supplement the grain of brewing barley with the grain of forage barley which is available to them as a result of the fulfillment and overfulfillment of plans. Due to the lack of attention to the production and sale to the state of barley in brewing condition the processing industry is undersupplied with quality raw materials and enterprises lose great sums of additional income, thereby depriving themselves of the possibility to strengthen their economies and to operate at a profit.

During the 11th Five-Year Plan, although there was a significant increase in quotas for the procurement of grain-forage crops the sowing area in barley decreased noticeably and equalled 3,223,000 hectares in 1984, which is 2,323,000 hectares less than the average for the years of the 10th Five-Year Plan. As a result of this barley production decreased significantly. In 1984 it decreased to the levels of the 10th Five-Year Plan in Tula, Kaluga, Orel and Ryazan oblasts and in many others.

A curtailment in barley production resulted in the disruption of the procurement plan. In 1984 the barley procurement plan was not fulfilled by the enterprises of Novgorod, Bryansk, Vladimimir, Ivanovo, Kalinin and Kaluga oblasts and by a whole series of others.

Oats are sown on over 3.5 million hectares in the zone, which is somewhat more than the average annual indicator for the 10th Five-Year Plan. In general the size of this area is satisfactory to fulfill the plan for oats procurement. On the average for 1976-1980 the procurement plan for oats was fulfilled by 142 percent, and in 1981-1984--by 114 percent. At the same time in 1981-1984 the Mordovian ASSR and Kirov, Gorkiy, Bryansk and Ryazan oblasts tolerated the curtailment of sowing area for oats. As a result, the procurement plan is not fulfilled here almost every year, especially in Kirov and Gorkiy oblasts.

The Non-Chernozem Zone has all the possibilities and must become a zone for the stable production of grain. It must supply livestock raising not only with coarse and succulent feeds but with concentrated feeds as well. The main path toward raising gross grain yield is growth in productivity. But we cannot fail to consider the possibilities for expanding sowing area in grain crops in places where extensive reclamation work is being carried out, and feed production must be moved to natural fields. To achieve this goal it is essential to persistently introduce intensive technologies for cultivating grain crops, to achieve strict adherance to technological discipline and to raise the quality of farming.

The cultivation of grain crops according to intensive technology encourages the achievement of productivity on a level for the potential possibilities of the variety. Zarya, Mironovskaya-808, Akhtyrchanka and Polesskaya winter wheat varieties and Voskhod-1, Voskhod-2, Chulpan and Kharkovskaya-60 winter rye varieties, which are regionalized for this zone, can achieve a yield of 60-70 quintals of grain per hectare. Last year this technology was examined in several enterprises of Moscow Oblast. Even with incomplete adherance to the recommended complex of work, Borets Kolkhoz produced 48.6 quintals of winter wheat grain on each of 100 hectares, Voskresenskiy Sovkhoz--42.2 quintals (260 hectares), Zarya Kommunizma State Breeding Farm--50.6 quintals (200 hectares) and Runovskiy Sovkhoz--50 quintals (207 hectares). On the remaining fields in these enterprises wheat productivity was lower by 8-16 quintals per hectare.

This year winter crops have been sown in the RSFSR's Non-Chernozem Zone on over 5 million hectares. On a large area they are cultivated according to intensive technology. In Moscow Oblast "intensive fields" occupy about 60,000 hectares, comprising about 25 percent of fields in winter crops. In the majority of enterprises of the Non-Chernozem Zone all measures are being taken to utilize the possibilities of the new technology as fully as possible in order to produce a large harvest of winter crops. This is a type of main road toward increasing gross grain yield with the goal of unconditionally fulfilling the plan for selling grain to the state and of satisfying the internal needs of each kolkhoz and sovkhoz using grain they themselves produce.

The responsibility of republic (ASSR), oblast and rayon state procurement inspectorates for dealing with these goals is growing. Many inspectorates have acquired experience in the Non-Chernozem Zone and are genuine organizors of procurement, achieving coordinated work among all partners within the agroindustrial complex. It is essential to continue to improve procurement work and to facilitate the maximum inclusion in state resources of grain in an assortment of crops, which will be a worthy contribution toward acceleration of the fulfillment of the Food Program.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SHORTCOMINGS IN PREPARATIONS FOR SPRING SOWING WORK SCORED

Minsk SELSKAYA GAZETA in Russian 20 Feb 86 p 3

/Article: "Accelerating the Rates for Preparing for Spring Sowing Operations"/

/Excerpts/ The leaders and specialists of the agroindustrial committee in Grodno Oblast, some of its rayon associations and many kolkhozes and sovkhozes are not making full use of the opportunities available for preparing for the spring field work. The instruction handed down by the directive organs with regard to the laying in of high quality seed on each farm has not been carried out.

The situation within the oblast with regard to improving the seed for all agricultural crops to the 1st class of the sowing standard is unsatisfactory. Only 467 tons of flax seed, or 18.8 percent, have been classified as being of 1st class quality. The situation is especially unfavorable in Voronovskiy, Ostrovetskiy, Smorgonskiy, Novogrudskiy and Svislochskiy rayons. On many farms, timely use was not made of the method for washing off buckwheat seed. As a result, more than 117 tons of this seed, or 21 percent, conform only to third class quality.

The plans call for the intensive technology to be used for cultivating 124,000 hectares of spring grain crops, 26,000 hectares of potatoes, 14,100 hectares of sugar beets and 16,000 hectares of flax. However, in Dyatlovskiy and Oshmyanskiy rayons the tasks were not made available to the kolkhozes and sovkhozes and the specialists in the various areas have not defined the tracts on which the crops are to be planted.

The tasks for re-equipping the machines for cultivating crops using the progressive technology have not been carried out throughout the oblast. Not enough pesticides are available for protecting the crops against pests, diseases and weeds.

These and other shortcomings became possible owing to the fact that the leaders of the oblast agroindustrial committee and its organizations failed to impose the proper degree of exactingness upon their responsible officials, they did not analyze the status of affairs in the various areas and they are not undertaking decisive measures aimed at eliminating incidents of mismanagement, violations of production discipline and deception of the state.

The results of an inspection were examined during a meeting of the BSSR KNK /People's Control Committee/. The 1st deputy chairman of the Grodno Oblast agroindustrial committee was made aware of the fact that only weak control had been exercised over the preparations for spring sowing and that less than adequate exactingness had been imposed over kolkhoz and sovkhoz personnel. I was recommended that he undertake immediate measures aimed at restoring proper order and to inform the committee regarding the results achieved in March of this year.

The chairmen of rayon agroindustrial associations in Grodnenskiy Rayon -- I. Kurzenkov and Oshmyanskiy Rayon -- V. Yefimchik received reprimands and the chairman of the Komsomolets Kolkhoz V. Yeremin and the director of the Belorussiya Sovkhoz in Grodnenskiy Rayon S. Kasperovich -- severe reprimands. They were tasked with explaining to their collectives the reasons for the mismanagement tolerated and they were required to report on the measures taken to correct the shortcomings.

The committees and groups were tasked with increasing control over the completion of all work concerned with preparing for the spring sowing work and for carrying this work out and they were also required to eliminate mismanagement and eyewash.

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MAJOR PROGRESS AND WEATHER REPORTING

SEED PRODUCTION ON INDUSTRIAL BASIS DISCUSSED

Minsk NARODNOYE KHOZYAYSTVO BELORUSSII in Russian No 11, Nov 85 p 25

/Article by N. Orlova, senior methodologist at the Exhibition of Achievements of the National Economy of the USSR: "Seed Production -- On An Industrial Basis"/

/Text/ Well organized seed production operations, which in our republic are being converted over to an industrial basis, can furnish dozens of additional millions of tons of grain and other agricultural products. Towards this end, specialized seed production farms have been established in all rayons for the production of seed for the best regionalized and promising varieties of grain, pulse and oil-bearing crops and grasses.

The Belorussian Scientific-Research Institute of Farming, jointly with the VDNKh BSSR /Exhibition of Achievements of the National Economy of the BSSR/, has organized an exhibit entitled "Leading Methods for Raising the Sowing Qualities of Agricultural Crop Seed and Accelerating the Introduction of New Varieties." The theme is clearly revealed by textual material and tables. Over the next few years, the best regionalized and promising varieties will be the following: Berezina winter wheat, Belta winter rye, Pukhovchanka and Kryzhachok winter rye, Belorusskaya-80 and Leningradka spring wheat, Zazerskiy-85, Zhodinskiy-5, Ida and Roland barley, Bug and Ergbraf oats, Iskra, Minchanka and Chernoplodnaya buckwheat, Narochanskiy and Akademicheskiy-1 fodder lupine, Uladovskiy-6, Melkosemyannyy-3, Aist and Vegetativnyy Zheltyy peas, Ustyanskaya maple peas, Belotserkovskaya-222 and Igovskaya-31/292 vetch and Aushra fodder beans.

The introduction of a system of mutually complementary varieties of spring barley, taking into account the duration of the growing season and resistance against diseases, ensures the possibility of obtaining high yields under various annual weather conditions. The following proportion is recommended by varieties: midseason-to-early ripening Ida variety--20-30 percent, Zhodinskiy-5 and Roland midseason maturing varieties for soils having an average level of fertility--40-50 percent and the Zazerskiy-85 midseason-to-late intensive type variety--20-30 percent.

The accelerated intorduction into production operations of new high yield varieties over a period of 3-4 years can be achieved through the timely establishment of primary seed production nurseries and use of the intensive cultivation technology.

The use of negative selection in primary seed production promotes the accelerated production of elite seed (3 years more rapidly than the method of individual family selection) and the introduction into production of new, promising and regionalized varieties of grain and pulse crops and buckwheat.

The exhibit materials reveal the effect of seed cultivation conditions on the productive properties and sowing qualities. Optimum sowing periods and complete support in the form of mineral nutrition promote an increase in the yield of barley seed, for example, of 13.3 quintals per hectare, oats -- 12 quintals per hectare and an increase of 2.9-4.8 quintals per hectare in the productive properties of seed in a nursery. An optimum and uniform seed placement depth for grain crops, when sowing is carried out to a depth of 3-4 centimeters, ensures a high sowing germinative capacity for the seed.

At the present time, approximately 70 percent of the grain and pulse crop seed, compared to the overall kolkhoz and sovkhoz requirements, is being produced by specialized agricultural farms. New varieties are actively being introduced into production by such farms as the experimental bases Annopol in Minskiy Rayon, Belousovshchina in Pruzhanskiy Rayon, Dovsk in Rogachevskiy Rayon, Oktyabr in Voronovskiy Rayon, the Prinemanskiy Training Farm in Grodnenskiy Rayons and the elite seed farms imeni S.M. Kirov in Kirovskiy Rayon, Strana Sovetov in Stolbtsovskiy rayon and others.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

KOLA PENINSULA HURRICANE--Murmansk, 17 Oct--It was not until morning that the hurricane which had raged over the Kola Peninsula for almost 15 hours finally abated. The wind velocity along the coast had reached 42 and in the city proper -- up to 33 meters per second. Not only were the weather forecasters aware of the cyclone approaching from the Atlantic, but they even tracked it from the Sea of Greenland and thus the oblast's inhabitants were warned in advance concerning the approaching danger. And the hurricane, which reached its peak during the night, presented the residents of the peninsula with many problems. Telephone communications with several cities and remote settlements throughout the oblast were disrupted, electrical communications were partially damaged, the delivery of electric power was halted temporarily and transport services were interrupted. Staffs for combating natural calamities, headed by the chairmen of executive committees of municipal and rayon soviets of people's deputies went into action almost simultaneously with the start of the hurricane in Murmansk and other cities throughout the oblast. The party and soviet organs adopted very urgent measures in the interest of correcting the damage caused by the hurricane. Dozens of buildings throughout the oblast sustained damage as a result of the raging elements. Hurricane winds are not a rarity for the residents of the Kola Peninsula and yet they usually are not as severe in force. This present hurricane differed in that it occurred during an unusual time of the year and it produced squall winds, icy conditions, considerable amounts of snow and a minus temperature. /Text/ /Moscow SELSKAYA ZHIZN in Russian 18 Oct 85 p 1/ 7026

ANIMAL RESCUE EFFORTS--Lipetsk--The local zoological park learned in advance that the high water on the Voronezh River would be especially great this year and thus it made preparations for it. The workers assembled platforms and rafts on which the animals could find temporary shelter. But they did not complete this work. The water rose rapidly. The inhabitants of a predatory animal section were in danger. First of all, there were some very small ones -- four newly born bear cubs. None of the workers of the zoological park had as yet seen them; they had only heard their voices. On this basis they were able to determine how many bear cubs were lying in the bear's den at the park. But how could the mother be enticed from the den and forced to move to the opposite end of the cage, thus making it possible to lower the metal netting thereby preventing them from returning to the den. Finally, one of the numerous attempts was successful. The bear cubs were placed in a temporary lodging -- in the office of the zootechnicians. In like manner, birds rescued from the high water were accommodated on the second floor of the zoological park's Board of Directors. Peacocks were proudly strutting and canaries singing gayly

in the director's office. Nothing else could be done; the personnel had to make room available. After the water had subsided, the zoological park was once again opened for visitors. /by G. Kolenchuk/ /Text/ /Moscow SELSKAYA ZHIZN in Russian 10 Apr 86 p 4/ 7026

GRAIN FEED QUALITY--Bryansk--The Bryansk farmers had raised to a high sowing condition all of their seed for spring grain crops. Of more than one million quintals, 70 percent met the requirements for 1st class of the standard and the remainder -- second class. This is the first time that such success had been realized in the oblast. /Text/ /Moscow TRUD in Russian 18 Feb 84 p 1/ 7026

WINTER CROP TOP DRESSING--Bryansk--The farms in Bryansk Oblast have commenced applying a top dressing to their winter crops and perennial grasses. The farmers are receiving assistance from aviators. The latter have undertaken to carry out this work on 360,000 hectares. /Text/ /Moscow TRUD in Russian 30 Mar 84 p 1/ 7026

OVERGROWN WITH WEEDS--Unfortunately, this scene was observed on one of the ancient lands of the nonchernozem zone -- Novgorod Oblast -- an area known to each Soviet individual for its glorious history. The vacant lands and some quiet streets and lanes in Novgorod itself have already become overgrown with rapidly growing weeds and undergrowth: burdock, sagebrush and lamb's quarters. It would seem that these weeds have settled here forever, concealing the view of the monuments of olden times. /Text/ /Moscow ZASHCHITA RASTENIY in Russian No 2, Feb 86 p 1/ 7026

APRIL THUNDERSTORM--As if by accident, Moscow experienced a thunderstorm on the evening of 15 April. It was the first such storm for the spring period, although not a very severe one for the season. It brought with it some well needed rainfall. It seemed that the purpose of the lightning and thunder was to drive away the cold weather and replace it with a period of inclement rainy weather. But just the opposite happened: nature has its own logic and its own causal-investigatory and to a large degree mysterious relationships. Once again, cold clouds and, in some areas, rain mixed with snow, rolled in from the north. Such a change in the weather during April seems to counter the bold irregularities of March. It is recalled that the first month of spring turned out to be extremely warm throughout the Russian plain. In Moscow, for example, its average temperature exceeded the usual figure by five whole degrees and March turned out to be an absolute record-breaker -- the only month, over a period of a century, with a plus (0.4 degrees). The unprecedented anomaly continued further -- and it was not possible to avoid misfortune: if not from destructive late cold snaps, then from intense heat or early drought conditions. In this regard, the signs were surprisingly simple for all people of all times. March heat hangs on in the manner of clay and that which March does not want is taken over by April. If March is similar to May, then May will be similar to March." Thus we will not reproach nature for today's cloudy weather and grey skies or for the moisture and rainfall: they are more valuable than a wagon-load of gold. April is the strongest month of nature. Only there should be no dryness or heat during this month. And in this regard the first spring thunderstorm was rather favorable. The cool weather and moisture which followed it was a good sign: Spring paused. It is presently glancing back over that which has already transpired and it is smoothing out the front for the awakening of

nature. At the same time, the thunder served as a signal to the entire world concerning the rapid conversion over to the summer weather regime. /by D. Smirnov/ /Text/ /Moscow SELSKAYA ZHIZN in Russian 17 Apr 86 p 4/ 7026

STORM CONDITIONS--Arkhangelsk--The cyclone which swept in the day before over the southern regions of Arkhangelsk Oblast and which was reported in advance to the northern residents by the weather forecasters turned out to be considerably stronger than expected. But the solidarity and organizational ability displayed by the personnel prevented the elements from interfering with the special operations being carried out in behalf of the state. The gusts of wind in Velskiy, Ustyanskiy and Kotlasskiy rayons reached a velocity of 30 meters per second. Within a matter of hours, in many areas where the spring streams were boiling over, snow drifts one half meter in height appeared. In the staff for combating the elements, organized within the Velskiy Rayon Executive Committee, reports were being received: the supplying of electric power had been interrupted on all of the farms. Fifteen 10-kilovolt electric power lines had been damaged. Telephone communications were disrupted. School exercises were cancelled. Globe lightning was being observed in many areas. In the morning, large hunting skis were gathered up from the homes. Only these could be used by the repair brigades for traversing the routes. Grain shipments to villages and towns commenced. The chief damage caused by the raging elements had already been corrected. All of the cross-country equipment was in operating condition. Current was being supplied to the sovkhoz and kolkhoz workshops and to the farms. /Text/ /Moscow SELSKAYA ZHIZN in Russian 20 Apr 86 p 1/ 7026

HIGH WATER CONDITIONS--One month ago, IZVESTIYA acquainted its readers with a forecast by the specialists concerning spring flooding. High water is expected on the rivers in a number of regions throughout the country. What is the situation at the present time? The following statement was made by the head of a laboratory for hydrological information of the USSR Hydrometeorological Center V. Pupkov. "At the beginning of spring, the high water was quite tolerable. Subsequently, cold weather set in and after a certain amount of time had passed this was replaced by warm weather. Thereafter, a cold snap once again appeared. Thus the thawing of the snow is taking place with interruptions. Nevertheless, high water has developed on a majority of the rivers in the Don, Oka and Dnepr basins and on small rivers in the Zavolzhye region. The water levels along the upper reaches of the Don and Oka rivers are 7-10 meters above the winter levels. The cities of Tula, Kursk, Lipetsk, Yelets, Dankov and others have warmed up somewhat. High water has been observed on rivers in the cities of Sterlitamak in the Bashkir ASSR, Irbit in Sverdlovsk Oblast and Rubtsovsk in the Altay Kray. In more northern regions of the country, the flooding is being delayed somewhat owing to cold weather. /by G. Alimov/ /Text/ /Moscow IZVESTIYA in Russian 17 Apr 86 p 6/ 7026

WEATHER, CROPS--Following unstable and mainly cold weather (during the second 10-day period), a sharp increase in temperature was experienced in a majority of the regions in the European part of the country. For cultivation work in the Volga and Urals regions, where the amount of precipitation was negligible, the soil ripened earlier (by 5-10 days) than the average periods established over a period of many years. The northern border for the resumption of vegetation for the winter grain crops and sown and meadow grasses passed through Pskov - Ivanovo - Ustinov and Sverdlovsk. In Lithuania, Latvia,

in the southern portion of the northwestern region and in Kalinin, Moscow and Vladimir oblasts, it is taking place during periods which are close to the average periods established over a period of many years and in the southern half of Volgo-Vyatskiy Rayon and in the northern portion of Povolzhskiy and the southern part of Uralskiy rayons -- roughly 1 week earlier than the average periods. In a large portion of the Ukraine, Moldavia, the north Caucasus and in the lower Volga region, growth has been observed in the winter wheat stalks. It is taking place in winter rye throughout almost the entire Ukraine, the southern portion of the central chernozem region and in the Volga area (to the south of Saratov). In the more northern regions, the winter grain crops are bushing out. The seedlings of spring barley appeared following warm spring rainfall and in the southern regions of the Ukraine and in Krasnodar Kray, the third leaf phase and tillering have been noted. Warm weather predominated in the farming regions of western Siberia and in the northern half of Kazakhstan. Field operations are commencing here. Warm weather continues in the cotton growing regions of Central Asia and Kazakhstan. Rain fell throughout the second ten-day period in almost all areas. The greatest amount of rainfall occurred in Ashkhabad Oblast and in regions to the east of a line connecting Karshi - Bukhara - Tashkent and Chimkent. Warm weather and good soil moisture conditions promoted the rapid germination of seed and the appearance of cotton seedlings on fields which were sown early in Ashkhabad, Mary, Bukhara, Kashka-Darya, Surkhan-Darya, Kurgan-Tyubinsk and Kulyab oblasts, in many regions of the Fergana Valley and in some rayons in Tashkent Oblast. This was earlier by 4-6 days than the average periods established over a period of many years. The germinating of seed was noted on a portion of the cotton growing territory. The sowing work continued in a number of areas. During the third 10-day period in April, it turned somewhat colder in Central Asia and southern Kazakhstan. /by L. Platonova/ /Text/ /Moscow SELSKAYA ZHIZN in Russian 30 Apr 86 p 1/ 7026

WINTER CROP SOWING OPERATIONS--The farms in all rayons of Vitebsk Oblast have moved their sowing units out onto the winter crop fields. Over a period of several days, the seed has been planted in the soil on more than 10,000 hectares. Each day the sown area is being increased by another 9,000-10,000 hectares. On a majority of the farms, the sowing is being carried out on well prepared soil that has been provided with mineral and organic fertilizers, as required by the intensive technology. Today, on tracts following the use of stubble predecessor crop arrangements, 2,150,000 tons of compost have already been applied. In all, the winter crop fields on farms throughout the oblast will be supplied with more than 2.5 million tons of organic material. The sowing is being carried out using prepared and treated in advance first class seed of high reproductions. At the same time, plowing is being carried out in behalf of crops that will be sown later. This work will be completed in a few days. Commencing with the very first days, the farms in Sharkovshchinskiy, Polotskiy, Orshanskiy, Miorskiy and Chashnikskiy rayons have led the sowing work in terms of rates and volumes. Here the seed has already been placed in the soil on 8-10 percent of the winter crop fields. This year, more than 80 percent of the winter crops in the oblast will be sown using a technological track. Each rayon possesses experience in growing grain crops using intensive technologies and the farmers have been gratified by the results. This autumn, special control will be exercised over each such field. As a rule, the sowing will be carried out by contractual collectives which earlier carried out an entire complex of preparatory operations. The task has been assigned of obtaining yields from the intensive sowings which will be larger by 7-10 quintals than the usual yields. /by V. Mikhasev/ /Text/ /Minsk SELSKAYA GAZETA in Russian 28 Aug 85 p 1/ 7026

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LIVESTOCK

SELECTIVE BEEF CATTLE BREEDING IN KAZAKHSTAN FOR HIGH PRODUCTIVITY

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 10 Jan 86 p 3

[Article by P. Nasipov, head livestock specialist with the Pedigreed Breeding Administration of the KaSSR State Agroindustrial Committee, and N. Akhayev, Honored Livestock Specialist of the KaSSR: "Intensification of Beef Cattle Breeding"]

[Excerpts] The draft Main Directions for Economic and Social Development of the USSR for the Period 1986-1990 and Extending to the Year 2000 gives particular attention to the development of beef cattle breeding. Kazakhstan is assigned a large role in this matter. The republic's farms must increase annual meat production to 1.4-1.5 million tons, of which beef will account for more than half.

The contemporary state of beef cattle breeding makes it possible to accomplish this task. Beef now accounts for 50 percent of the total meat production.

The republic has reserves for building up meat production. First of all, this involves developing specialized beef cattle breeding. We presently raise two domestic beef breeds: the Kazakh White-Faced and the Kalmyk. They are being improved, and new types are being developed. Imported breeds--the Hereford, Galloway, Aberdeen Angus, Charolais, Santa Gertrudis, Cuban Zebu and others--are being extensively used for this purpose. A total of 722 farms are engaged in raising special beef breeds, including 73 specialized farms and involving 127 rayons and 18 oblasts. Beef production is increasingly based on specialization and intensification and not on numerical growth of the herd. The specialized farms are to increase the average delivery weight of the animals to 430 kilograms by 1990.

Of the beef breeds, priority now goes to the Kazakh White-Faced. Its potential is still not being utilized, however. It has great reserves.

Many years of experience have confirmed also the large reproductivity abilities of this breed in all of the republic's zones. The Pokrovskiy and Ordzhonikidzevskiy Breeding Farms obtained 93-98 calves per 100 cows in 1984, for example, the Taldy-Kudukskiy [Sovkhoz] and the Sovkhoz imeni the Newspaper Pravda, 90-87 [sic], and the Shirokovskiy Sovkhoz in Tselinograd Oblast obtained 98. The Korostylevskiy [Sovkhoz] in Semipalatinsk Oblast has been obtaining 96 calves per 100 cows in recent years. The achievement of these economically beneficial

traits in the breed is making it possible to significantly increase the production of high-quality beef in the republic. These capabilities are not being satisfactorily utilized in many cases, however.

For example, the live weight of cows from the third calving and subsequent progeny is 420-450 kilograms on the Chigilek Breeding Sovkhoz in Semipalatinsk Oblast, on the Shoktykulskiy Breeding Farm in Turgay Oblast, the Kumuzekskiy Breeding Farm in Dzhambul Oblast and others. This indicates that the specialized raising of young animals is not at the proper level there. These cows will pass on the same kind of weights to their offspring.

Meat production has dropped considerably due to organizational and management errors. Young animals older than 8 months produced daily weight gains of 117 grams on the Kriushinskiy Sovkhoz in Semipalatinsk Oblast in 1984. The figure was 130 grams on the Akkolskiy and Novorossiyskiy Sovkhozes in Aktyubinsk Oblast and 165 grams on the Kumuzekskiy Sovkhoz in Dzhambul Oblast.

One of the main reserves for considerably increasing the production of beef and of meat in general lies in enhancing the productivity of the livestock through purposeful selective breeding to improve the quality of the cattle and to develop new types and hybrids. The breeders are assigned the task of having in each zone in the republic beef cattle the young of which have a live weight of 430-450 kilograms when raised with the industrial technology to the age of 15-18 months.

Up to now the selective breeding work, particularly the use of highly valuable line-bred bulls, has been performed on a local scale. Because of this the herd's productivity has remained at the same level for a long time. Cross-breeding of lines is the solution. This produces the greatest results when it is performed on an interregional basis. Animals raised under different ecological conditions pass on to their offspring increased hardiness and productivity. The Kazakh Animal Husbandry Scientific Research Institute has worked out recommendations for using lines of the Kazakh White-Faced breed. This work is already being performed under a unified plan.

Nine pedigreed breeding centers, 26 pedigreed breeding sovkhozes and 57 pedigreed breeding farms are engaged in breeding and improving the productive qualities of beef cattle in the republic. Around 10 percent of all the highly valuable cows are concentrated there. They sell more than 9,000 purebred bulls and 20,000 heifers annually. Breeding purebred cattle is a lengthy method, however. Cross-breeding is more advantageous. Work is presently underway to develop a new type of animal with intensive growth by crossing the Kazakh White-Faced breed with the Simmental. Five base farms have been designated with a total herd of 4,000 cows in Dzhezkazgan and Pavlodar Oblasts. More than 1,500 calves have already been produced.

The Kazakh White-Faced breed and the Santa Gertrudis are being crossed to develop a new Zebu-like breed, the Kazakh Red, in Alma-Ata and Taldy-Kurgan Oblasts. It is highly productive. Bulls of the desired type surpass the first-class standard for the Kazakh White-Faced breed by 55-56 kilograms at the age of 18 months.

The crossing of the Kazakh White-Faced and the Cuban Zebu has been started for developing beef hybrids on farms of Alma-Ata, Dzhambul, Kzyl-Orda and Chimkent Oblasts. The first generation exceeds the productivity of the original breed by 15-20 percent. They are not demanding with respect to feed or keep, and they are hardier.

When two or several breeds are crossed, a biological vigor, called heterosis, is manifested in the first generation of hybrids. It grows weaker with each new generation, however. It therefore has to be reinforced through selection. Heterosis is skilfully utilized on the Moskalevskiy Sovkhoz in Kustanay Oblast. The Kazakh White-Faced is crossed with the Aberdeen Angus and Charolais. Because of the twofold effect of heterosis, the productivity of the hybrids is significantly enhanced. Each year the farm delivers to the state from its feedlot around 3,000 young animals with a live weight of more than 500 kilograms. Their average daily weight gain exceeds 700 grams.

Special mention should be made of the need to make efficient use of the breeds developed and to improve the technology for raising the brood herd and fattening the cattle on an industrial basis. The Kazakh White-Faced breed, which has performed well in the semiarid rayons of the republic's southern oblasts, in Guryev Oblast and in certain rayons in Aktyubinsk and Ural Oblasts, markedly loses the organism's resistance and productivity under the extreme ecological conditions. When animals of this breed are kept for a long time in those zones, they become considerably smaller with each new generation and approach the local, unimproved livestock with respect to productivity.

Is there a way out of this situation? Yes, the breeding of the Kalmyk. At the present time, it has undeservedly been displaced in all of the republic's zones by the Kazakh White-Faced breed. Experience has shown, however, that it is irreplaceable in the extreme conditions of southern Kazakhstan. There are around 10,000 head in the republic. There are two breeding farms--in Aktyubinsk and Dzhambul Oblasts. A unique purebred herd of Kalmyk cattle has been established on the Sovkhoz imeni Dzhambul in the latter under the methodological supervision of scientists from the Alma-Ata Veterinary Institute. The average daily weight gain for suckling calves up to the age of 6 months is 700-750 grams for purebred Kalmyk cattle and 680-685 grams for hybrids. The live weight of Kalmyk bulls raised on pasture to the age of 17 months is 365 kilograms, which is slightly more than for local animals.

It is also advantageous to raise the Santa Gertrudis breed and let it absorb the local cattle. This highly productive breed was specially developed for zones with a predominance of course-stemmed feed, especially brush. There are around 33,000 head of this breed in the republic. It is widespread in Taldy-Kurgan and Alma-Ata Oblasts. Highly productive herds have been established there. A great deal of work has been performed in the crossing of local cattle and the Kazakh White-Faced with this breed, and good productivity has been achieved. Bullcalves raised on their mothers to the age of 8 months and then fattened on brush hay, silage and an additive of concentrated feed have a live weight of more than 460 kilograms at 16 months and more than 600 kilograms at 23 months.

The Galloway, a highly productive, specialized beef breed, is raised in the republic. It is well adapted to mountainous conditions and is not demanding with

respect to feed or keep. We presently have around 17,000 animals of this breed. However, there are clearly too few for the vast mountain pastures of East Kazakhstan, Simipalatinsk, Taldy-Kurgan, Alma-Ata, Dzhambul and Chimkent Oblasts.

No matter what breed the farms raise, however, the productivity and the economics of beef cattle breeding depends upon the state of herd reproduction. How can we speak of effectiveness, when farms in Guryev Oblast obtained 35 calves per 100 cows and heifers during the first 10 months of this year; Dzhezkagan, 48; Kzyl-Orda, 43; Semipalatinsk, 59; Turgay, 58; and Ural Oblast, 61. We know that meat production per head is around 150 kilograms when 100 calves are produced from 100 cows, and only 60 kilograms when the increase is 50 head. The cost of producing a calf is 155 rubles in the former case, 228 rubles in the latter.

The intensive fattening of culled cows constitutes a considerable reserve for increasing beef production. This is done on an extensive basis on the progressive farms. The Sovkhoz imeni the Newspaper Pravda in Ural Oblast, for example, obtains a weight gain of 80-90 kilograms in these cows over a 60-day period. Republic farms deliver around 300,000 culled cows each year. Increasing their delivery weight by just 50 kilograms could produce an additional 15,000 tons of beef.

Finally, the republic could provide a considerable amount of additional meat for state stocks by reducing losses. Many of the farms presently lose up to 10-15 percent of weight gain because delivery of the animals to the meat combines is poorly organized. It has therefore become necessary, along with the centralized shipment of cattle, to set up slaughter facilities at the large specialized farms in remote areas of developed cattle breeding.

Great national economic importance should be attached to all of these questions in resolving the problem of increasing meat production and procurement. Careful use must be made of all production reserves.

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LIVESTOCK

1985 BELORUSSIAN MILK PRODUCTION, MEAT PURCHASE INDICATORS

Minsk SELSKAYA GAZETA in Russian 24 Jan 86 p 3

[Excerpts] Oblast and Rayon Indicators in the Production of Milk and Sale of Meat by kolkhozes and sovkhozes of the Belorussian SSR in 1985

Oblasts	(1)	(2)	(3)	(4)	(5)	(6)
Minsk	613.3	107	105	2,522	+114	108
Brest	552.6	104	106	2,594	+126	111
Gomel	527.3	102	108	2,464	+183	113
Grodno	515.9	90	103	2,795	+ 60	106
Vitebsk	458.7	89	106	2,402	+152	110
Mogilev	431.1	84	104	2,302	+110	108
Total for BSSR	517.7	---	105	2,502	+128	109

Key: (1) The production of milk per 100 hectares of agricultural land
(2) Percent of the anticipated level of production taking resources into consideration
(3) Percentage of production in comparison with the previous year
(4) Yield of milk per cow in kilograms
(5) The yield of milk per cow above or below that of 1984
(6) Percentage of fulfillment of the annual plan for the purchase of milk by all categories of farms

Oblasts	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Grodno	188.6	95	104	473	371	424	111
Brest	174.7	94	110	440	375	410	117
Minsk	163.9	84	106	422	326	406	107
Gomel	136.0	79	107	420	341	408	105
Vitebsk	117.9	73	109	401	301	417	108
Mogilev	114.7	70	109	409	290	401	103
Total for BSSR	147.5	---	105	427	334	411	109

Key: (1) Sale of cattle and poultry per 100 hectares of agricultural land
(2) Percent of anticipated level of production with consideration of resources
(3) Percentage of production in comparison with the previous year
(4) Average daily weight gain (in grams) for cattle
(5) Average daily weight gain (in grams) for hogs
(6) The average weight of one head of cattle sold to the government (in kilograms)
(7) Fulfillment of the annual plan for the purchase of meat

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LIVESTOCK

PROBLEMS WITH APPLICATION OF MILK PRODUCTION TECHNOLOGY

Moscow SELSKAYA ZHIZN in Russian 12 Apr 86 p 2

[Article by V. Shabranskiy, candidate of technical sciences; A. Lyakh, laboratory director; and V. Lyakh, engineer and meritorious agricultural worker of the UkSSR, All-Union NII [Scientific Research Institute] of Mechanization in Livestock Raising, Kiev: "Costly Attachment/ Or What Conservatism in Zootechnology Results In"]

[Text] It is no secret to anyone that during the last 15 years labor productivity has practically not grown on dairy farms. On most farms, even if they are mechanized, the predominant technology is based on unproductive and primarily manual labor. The equipment that is used on farms eases labor at least to some degree, but does not change its nature. To a significant degree as a result of this a difficult manpower problem has developed in dairy farms. Thousand of positions for masters of machine milking, now unfilled, are being filled by untrained workers.

We feel that all of this has occurred because the striving to obtain farm products at any price has taken root in a significant number of zootechnologists and directors of enterprises. Here instead of introducing progressive technologies and highly productive equipment, they unjustifiably complicate the conditions and regimen of labor on farms, introduce three-time milking and begin work at 4-5 in the morning. Whereas in industry an entire robot machine is developed to replace one worker, in livestock raising there is a firm hold on 30-year old antediluvian labor-intensive milking equipment although its productivity is less by a factor of 5-10 than that of new automated units.

The Basic Guidelines of Economic and Social Development for the country emphasizes the necessity to introduce intensive methods and progressive flow technologies for the production of meat, milk and other products. In dairy farming this means, first and foremost, the introduction of milking halls with highly productive milking equipment of the Tandem, Yelochka or Karusel type and modern equipment for purifying and cooling milk.

Modern milking equipment is most effective with the free-pasturing, untethered upkeep of cows. This technology is not new. In countries with a developed dairy industry it became the basis for milk production on large farms long

ago. We have such experience in our country as well. A number of farms have been utilizing this progressive technology successfully for many years--milk yield here comprises 4,000-5,000 kilograms, only 1.8-2.4 man-hours are expended to produce a quintal of milk, and production profitability reaches 50-70 percent and more.

Over 20 years of work experience by leading enterprises and the research of scientists have proven that the untethered upkeep of cows improves their physiological condition. Their productivity and resistance to disease, the reproduction capacity of the herd and the health of young animals all improve. But most importantly, it is possible to sharply--threefold or fourfold--curtail the number of milkmaids needed, to increase their wages and thus to supply the farm with better-trained cadres and operators of machine milking.

Sixteen dairy complexes and farms were specially built and renovated to study questions related to the transition of the branch to an industrial foundation with the utilization of untethered upkeep of cows. An analysis of the work of these complexes has shown that they achieve a greater milk yield in cows and a greater output of calves per 100 mothers. Meanwhile, labor expenditures decrease by 30-35 percent and the number of cows overseen by a single operator of machine milking triples.

In the course of the extensive study of various technologies a consideration was made of their negative aspects as well. The main ones are poor preparation of replacement young, an inadequate feed base and the imperfection of individual planning-technological decisions. For example, it was discovered that only one-third of all cows were suitable for industrial technology.

A comparative evaluation of milking equipment was made. In the first stages of introducing industrial technologies it is best to utilize units of the Tandem type. With this equipment it is easier to organize the milking of cows which have not been chosen for the speed of milk output and for level of productivity; it is also easier to adjust individual doses of concentrated feeds. That strict selection of a herd for machine milking which is essential for employing Yelochka equipment is not so necessary here.

The conclusions drawn from the results of this research correspond fully to the results of 24 years of production research work at the experimental farm-laboratory of our institute's experimental farm. For the majority of indicators the best variant was that which utilized the untethered upkeep of cows with a deep irremoveable bedding and milking using the UDT-6 Tandem machine. This technological variant is expedient for those enterprises in which it is possible to utilize straw or dry peat at a rate of 1 ton per cow annually as bedding. Here the important thing is that in one season 9-11 tons of rotted manure are collected per cow.

In the absence of such possibilities it is best to utilize untethered stall upkeep with bulldozer removal of manure. Practical experience shows that one bulldozer operator on a tire tractor can remove manure from a farm with 1,600 head of livestock, including 800 cows. There is no longer a need to utilize

various transporters to remove the manure. The best floors for stalls are clay with sawdust, peat or rubber mats.

After 18 years of utilization of Tandem milking equipment on the farm of the VNIIMOZh [All-Union Scientific Research and Planning-Technological Institute of Mechanization in Livestock Raising] OPKh [Experimental Model Farm], new UDA-8A Yelochka and Karusel equipment was put into operation there. The Yelochka equipment is used to milk 220 cows, and in 1 year its two operators produced 960 tons of milk. And on the Karusel equipment one operator and helper taking care of 320 cows produced 1,350 tons of milk. The productivity of this farm equals 55-79 percent each year. With an average annual herd of 817 cows and a milk yield of 4,279 kilograms the farm yields 580,000 rubles in profits.

At one time many errors were tolerated during the introduction of untethered upkeep. This discredited the method and forced farmers to treat it with caution. The main error was the transfer to untethered upkeep of old cows which were accustomed to tethered upkeep and individual care. An abrupt change in regimen decreased herd productivity. But the results of this type of lack of knowledge of the alphabet of livestock raising were blamed on the new technology.

In places where industrial technology is being introduced knowledgeably high indicators have been achieved from the very first. The experience of the sovkhozes in Kiev Oblast has shown that it is best to transfer a farm to the new technology in stages by means of the systematic reorganization of facilities, the addition of milking-dairy blocks and the equipping of new industrial groups with primaparas. With the annual rejection of 25-30 percent of cows the entire farm can make the transition to the new technology within 3-4 years without decreasing herd productivity.

Today all conditions exist for the transition of dairy production to an industrial base. Plants manufacture the necessary equipment, including new UDA-8 Tandem and UDA-16 Yelochka equipment with automatic manipulators. In addition to practically doubling the labor productivity of operators of machine milking, this equipment sharply decreases the incidence of mastitis among cows. The progressive technology is already being introduced in many enterprises of the Estonian SSR and Leningrad and Crimea Oblasts, where it has been placed on a plan basis and is comprehensive in nature.

Still, hesitation and debates about the selection of the most efficient technology for dairy production have become too protracted. The attachment of livestock farmers to old production methods is costly for the country. It would be an unforgiveable omission and direct mismanagement not to immediately organize the introduction of modern milking equipment in kolkhozes and sovkhozes. After all it is precisely on this basis that it is possible to put dairy farming on an industrial foundation.

Right now some enterprises do not have the opportunity to transfer livestock to untethered upkeep. In this case an intermediate variant can be employed--tethered upkeep in conjunction with milking using Tandem or Yelochka equipment. For this purpose stall equipment with an automatic restraint

designed by VIESKh [All-Union Scientific Research Institute of Rural Electrification], which is being mass produced, is employed. On such a farm one trained operator of machine milking can work with 200 cows.

Scientific-research and planning-technological institutes of USSR Gosagroprom [All-Union Agroindustrial Association], which have studied the long-term work experience of our country's best farms, have worked out a series of planning-technological solutions for the renovation of farms and for the addition of milking-dairy blocks to existing cowsheds. These elaborations ease the selection of the most efficient variants for any dairy farms in all climatic zones. The task now is to make the transition of dairy farming to progressive technology as quickly as possible without decreasing herd productivity. This work must be planned and implemented on the oblast or kray scale with the recruitment of local planning, building, installation and supply organizations.

Persistence and organization are needed for the introduction of the new. Otherwise it will be necessary to wait for a long time for the appearance of enthusiastic directors, and even they will not be able to solve the whole problem even if they want to.

8228
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REGIONAL DEVELOPMENT

GEORGIAN GOSAGROPROM OFFICIALS INTERVIEWED ON REORGANIZATION

First Deputy Chairman

Tbilisi ZARYA VOSTOKA in Russian 8 Feb 86 p 3

/Interview with member of the Buro of the Central Committee of the Communist Party of Georgia, 1st deputy chairman of the Council of Ministers of the Georgian SSR and chairman of the State Agroindustrial Committee of the Georgian SSR Omar Vardzelashvili; date and place not specified/

/Text/ The reorganization of the agroindustrial complex is taking place throughout the republic. The discussion being published today is the first of a series of materials devoted to various aspects of the work concerned with the creation of an optimum economic mechanism for the APK /agroindustrial complex/.

/Question/ Omar Georgiyevich, during the 27th Congress of the Communist Party of Georgia a task was advanced -- to accelerate to the maximum possible degree the formation and working out of a new organizational structure and to achieve a situation wherein the agroindustrial complex is planned, financed and administered as a single entity. What has been done and what is being done today in the interest of solving this task?

/Answer/ Since the adoption by the CPSU Central Committee and the USSR Council of Ministers of the decree calling for further improvements in APK /agro-industrial complex/ administration, a considerable amount of work has been carried out in our republic in connection with reorganization of the economic organs and the formation of the State Agroindustrial Committee. In principle, it has already been created and has commenced functioning. The reorganizational work is continuing in the rayon agroindustrial associations, where industrial enterprises for the primary processing of agricultural raw materials and other installations are being turned over to the RAPO's /rayon agroindustrial associations/. We are undertaking measures aimed at accelerating this process in the interest of ensuring, as rapidly as possible, the efficient functioning of the newly created APK system.

/Question/ At one time our republic pioneered improvements in the administration of the agroindustrial complex. An experiment started in Abashskiy Rayon terminated with the creation of rayon agroindustrial

associations. In accordance with the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, the new form for administering the agroindustrial complex was distributed throughout the entire country. They went even farther in our republic -- based upon the Ministry of Agriculture, Goskomselkhoztekhnika and the Ministry of Land Reclamation and Water Resources, the State Committee for Agricultural Production for the Georgian SSR was created. Time has confirmed the correctness of this action taken... Is this not true?

/Answer/ Beyond any doubt. Such reorganization of the administration of the agroindustrial complex was in pursuit of one goal -- to provide the land with one master in the form of Goskomselkhozproizvodstvo /State Committee for Agricultural Production/, which is completely responsible for the final quantitative and qualitative results. This had a positive effect with regard to increasing the production of agricultural products, strengthening the rural economy and developing relationships within the APK. However, the departmental isolation of many branches included in the agroindustrial complex and particularly the disconnection in the production of agricultural products and raw materials and their processing continued to be felt in a very sharp manner. There was an absence of proper timing, efficient coordination of actions and interest in the overall final operational results of those branches engaged in producing agricultural products and raw materials and processing them. Yes and the land did not have just one master, since in addition to Goskomselkhoz-proizvodstvo the Ministry of the Fruit and Vegetable Industry, with its own structure, attached canning industry and procurement service was also functioning within the republic. Such a situation was observed throughout the country as a whole. And against the background of the tasks advanced during the April and October (1985) plenums of the CPSU Central Committee, aimed at radically improving the country's economy from the standpoint of effectiveness, the decision which called for further reorganization of the administration of the APK and the creation of a union-republic State Agroindustrial Committee for the USSR was completely logical. Accordingly, the State Agroindustrial Committee for the Georgian SSR was created in our republic, based upon the former Goskomselkhozproizvodstvo, Minplodoovoshchtrog, Minmyasomolprom, Minpishcheprom, Goskomchayprom and Goskomvinprom and also those subunits of Minstroy /Ministry of Construction/ which earlier constituted the Ministry of Rural Construction for the Georgian SSR.

Since the USSR Ministry of Land Reclamation and Water Resources was not included in the structure of the country's Gosagroprom, the operational functions of large land reclamation systems and hydraulic engineering installations of agricultural water supply were turned over by us to Glavgruzvodstroy. At the same time, expertise in the handling of plans and estimates, determining the limits for capital investments and for financing land reclamation work and the acceptance of new installations were all considered to be the prerogative of the republic's Gosagroprom. From the Ministry of Procurements, now converted into the Ministry of Grain Products, inspections for procurements and the quality of products were turned over to us and from Minlegprom /Ministry of the Light Industry/ -- enterprises for the primary processing of wool.

In addition to sovkhozes, kolkhozes and other agricultural organizations, more than 800 meat and dairy plants, tea factories, wine-making and canning plants,

supply, construction, procurement and trade enterprises and organizations were directly subordinate to RAPO's.

Large enterprises for secondary industrial processing, mechanical plants, supply bases, packaging and other enterprises engaged in carrying out branch and inter-rayon functions and which determine the technological policies for managing the APK branches remain directly subordinate to Gosagroprom for the Georgian SSR.

The basic principle for the formation of Gosagroprom for the Georgian SSR was that of achieving optimum integration of agricultural production with the processing industry at all levels and eliminating parallelism and mutually exclusive aspects in planning, financing and logistical supply and in scientific-technical support for the APK. Naturally, this principle is embodied in the structure of the central apparatus of the republic's Gosagroprom. The management for the production, sale and processing of the principal types of agricultural products and raw materials is concentrated in six of its twelve main administrations. The main administrations for planning, construction and logistical supply, for mechanization and electrification and for scientific and personnel support for the Gosagroprom system of the Georgian SSR are common for all.

In short, we are undertaking all possible measures aimed at solving the chief task assigned to the republic's Gosagroprom -- making maximum use of local potential for increasing the production of food goods and raising the volumes of marketable output in the APK sphere. The task, the importance of which was emphasized in particular in the draft new edition of the CPSU Program, where strengthening and increasing the effectiveness of the agroindustrial complex and complete satisfaction of the country's requirements for its products were cited as an indispensable condition for socio-economic progress.

/Question/ In solving this task, the republic's Gosagroprom will have to overcome many problems. Is this not so?

/Answer/ There are many problems and the majority of them will not be solved easily. These problems were discussed directly and openly during the 27th Congress of the Communist Party of Georgia. The labor productivity level for agriculture in the republic and production costs are lower than the all-union indicators. The culture of farming is not sufficiently high, a considerable number of farms from year to year are not fulfilling their plans for agricultural crop yields and a stable increase is not being achieved in the return from irrigated lands.

Such traditional and basic branches of the republic as viniculture and wine-making are experiencing considerable difficulties at the present time. In connection with the well known party and governmental decree on intensifying the campaign against drunkenness and alcoholism, a radical reorganization is needed here, one aimed at expanding the areas for table and unique varieties and the production of high quality products, including non-alcoholic products. Some critical problems are making themselves known in tea production and in the tea processing industry: renovating the tea plantations, introducing new varieties, raising exactingness with regard to observance of the agrotechnical

norms for the harvesting of tea leaves, the tea processing technology and, on this basis, raising the quality of tea.

There are many complicated problems in citrus fruit production and in fruit and vegetable production. At the present time, the products of our canning industry for the most part are not in great demand by the consumers. What are the reasons for this? Quite often the assortment is of a monotonous nature, the quality is low and the marketable appearance leaves a great deal to be desired. Within the republic there are many technically weak and backward farms. We are sustaining irreplaceable losses as a result of poor organization in harvesting the crops and in transporting, storing and processing them.

There are many problems and one could spend a great amount of time discussing them. I will emphasize just one. Not one of these problems should be postponed, but rather each one should be solved on an immediate basis. Unless this is done, it will be very difficult for the republic's agroindustrial complex to achieve the level defined in the draft Basic Directions for the Economic and Social Development of the USSR During the 1986-1990 Period and for the Period Up To the Year 2000.

/Question/ In your opinion, what problem should be considered as the key problem, the solution for which will aid in rapidly solving the other problems?

/Answer/ Personnel. Certainly, the personnel problem. I believe that this is the problem of problems. At the present time, we have encountered two aspects of it. The first: we must accustom a large number of people to work, individuals who became available as a result of reorganization or the merging of ministries and other departments into a single Gosagroprom. The second and chief aspect: we presently have an extreme need for personnel who are capable of working in keeping with the new conditions, individuals who possess all of the required attributes -- intellect, thorough knowledge, organizational skills, initiative and independence of thought. We are experiencing a shortage of such personnel and are searching for them. And quite often we encounter sluggishness, stereotyped thinking and inability or a lack of desire to reorganize or to understand that in an atmosphere of improvements, which is taking place at the present time in our country's economic and social sphere, use must not be made of old methods.

The reorganization of APK administration and its integration are presently complicating the tasks confronting the primary elements of the republic's agroindustrial complex -- RAPO's. And just how they are coping with these tasks is directly dependent upon the leaders of the rayon agroindustrial associations, their business-like qualities and upon their enterprise in the best meaning of this word. Any initiative must first of all be based upon state interests. Upon breaking down the barrier of departmentalization, we must not fall prey to local considerations or replace truly necessary tasks with matters of secondary concern. Unfortunately, we are encountering such incidents. For example, in some regions of the republic, especially known for dairy cattle husbandry operations, the production of milk is being lowered in favor of organizing the production of products by subsidiary industrial farms. This is all obviously necessary, but not to the detriment of the chief goals.

Each initiative must have a solid economic basis and a control system which would fully exclude the use of a narrow-minded approach or malicious violations of socialist legality. During the republic's communist party congress, it was stated that the greatest number of abuses, violations and shortcomings occur in APK branches. And an important task of Gosagroprom is to prevent this from happening in the future. The state interests must be protected in a vigilant and decisive manner and every attempt must be made to rid ourselves of those people who either directly or indirectly promote through their work the creation of a favorable atmosphere for various criminal acts.

/Question/ What mechanism is employed for mutual relationships between the State Agroindustrial Committee for the Georgian SSR and the territorial agroindustrial associations?

/Answer/ As already stated, the chief task of Gosagroprom is that of achieving unity in planning, financing and logistical supply at all levels of the APK. With the participation of Gosplan, it defines the development of the agroindustrial complexes for the Abkhaz and Adzhar autonomous republics, the Southern Osetian Autonomous Oblast and rayons (cities) and it prepares appropriate indicators for all of the territorial APK's, ministries and departments of the Georgian SSR included in the republic's agroindustrial complex system and also for all subordinate projects and ensures that they are supplied with the necessary resources. The control figures for the development of the republic's APK are made available to the councils of ministers for the Abkhaz and Adzhar ASSR's and the Southern Osetian Oblast Executive Committee and to RAPO's not included in the structure for autonomous republics and oblasts, in a single line and with no breakdown by branches. In turn, the rayon agroindustrial associations make the control figures available to the enterprises and organizations included in their structure. And the plans for economic and social development are already being developed directly at the kolkhozes, sovkhozes and other enterprises. These plans must pass in reverse order all of the stages followed by the control figures from top to bottom. Overall, they appear as summary plans for the territory in Gosplan and as a section for the APK -- in Gosagroprom. Based upon all of these recommendations, Gosagroprom composes draft annual and five-year plans for economic and social development within the APK system and it also presents them to Gosplan. It also distributes the logistical resources allocated to it for the territorial APK formations and also for the ministries and departments included in its structure and it organizes their use. In addition, Gosagroprom has at its disposal all of the material reserves needed for the efficient carrying out of unforeseen operations.

In addition to these and a number of other functions, Gosagroprom is directly responsible for improving the work of subordinate scientific-research institutes and for all problems associated with scientific-technical progress.

The RAPO's, as primary elements of the APK, are responsible for carrying out the orders of the state for product deliveries in the established assortment, for creating optimum conditions for efficient work by the kolkhozes and sovkhozes and for developing the initiative of labor collectives based upon the use of economic levers and particularly the extensive introduction into operations of the collective contract and cost accounting procedures. Some other concerns of

the RAPO's include: organizing the work of a single engineering service, ensuring that the kolkhozes, sovkhozes and other enterprises and organizations are supplied with logistical resources, organizing the procurements and marketing of products and the development of processing and storage bases and implementing improvements in agrochemical and production-technical transport services and in capital construction.

Moreover, the most important responsibility of the RAPO's includes the effective use of the production potential created, an improvement in soil fertility, an increase in the cropping power of fields and plantations and in farm productivity, raising labor productivity and lowering the production costs for both agricultural and industrial products and achieving harmonious operations between the agricultural enterprises and enterprises of the food industry.

/Question/ Gosagroprom is today taking its initial steps. When will it be poassible to discuss the initial results?

/Young chicks should be counted in the autumn. Let us grow and harvest our crops and process them and thereafter we will continue our discussion. But in order to have something to talk about, work must be carried out at the present time. Organizational reorganization guarantees nothing if it is not reinforced by our work, work that furnishes a maximum return. And there is a great amount of such work. There is the wintering of livestock, preparations for spring field work and the repair and modernization of processing enterprises for the new season. Gosagroprom is now responsible for all of the above and for a great deal more. Considerable importance is being attached at the present time to having a fine work tempo right from the start. Even more important is the fact that we are commencing this work simultaneously with the beginning of the new five-year plan and in an atmosphere of high labor and political enthusiasm, engendered by preparations for the 27th CPSU Congress.

This is why I wish to return once again to those tasks which were assigned to Gosagroprom during the 27th Congress of the Communist Party of Georgia and specifically to the requirement for converting the new state committee into an exemplary organ for administering a large multiple-branch complex and to rely mainly upon the factor of intensification. All of our work will be aimed at solving this very important task.

Roundtable Discussion

Tbilisi ZARYA VOSTOKA in Russian 18 Feb 86 p 2

/Roundtable discussion with Gosagroprom officials conducted by M. Azhindzhikhashvili; date and place not specified/

> /Text/ A new and authoritative administrative national economic organ has been formed in the republic -- Gosagroprom. ZARYA VOSTOKA began its discussion of the related reorganization with a conversation held with a member of the Bureau of the Central Committee of the Communist Party of Georgia, 1st deputy chairman of the Council of Ministers for the Georgian SSR and chairman of the republic's Gosagroprom Omar Vardzelashvili.

Today the Editorial Board gathered planning officials around its round table -- chief of the Main Administration for Planning Social and Economic Development for the Agro-industrial Complex Shota Kikalenshvili, the chief of administration for the summary plan and economic analysis Soso Zhvaniya, chief of the administration for production planning and for the processing of APK /agroindustrial complex/ output Zaur Devidze and chief of the administration for improving the economic mechanism Boris Rabinovich.

/Question/ In answering questions of the newspaper HUMANITE, the General Secretary of the CPSU Central Committee Comrade Mikhail Sergeyevich Gorbachev once again emphasized that radical improvements must be realized in planning within a brief period of time. And this task has been assigned primarily to Gosagroprom. What changes are taking place in planning for the republic's APK?

/Answer by Shota Kikaleishvili/ During the May (1982) Plenum of the CPSU Central Committee, a basic thesis was formulated: the agroindustrial complex must be planned, financed and administered as a single entity. This principle was defined more specifically and further developed in the pre-congress documents. Its essence consists of indicating that Gosagroprom is becoming the central organ for APK administration at all levels: union, republic and oblast. It bears complete responsibility for the production of food products and agricultural raw materials and for their processing and conservation. Thus a complete cycle is concentrated in the hands of this new organ of administration. The same holds true with regard to planning. We are now able to plan the entire cycle and to coordinate the interests of production, services and processing.

This is also expressed in the structure for our main administration for planning the social and economic development of the APK. For example, in its subunit, the administration for planning the production and processing of APK products, as indicated by its title, the production, procurements and processing of field crop husbandry products will be planned in one department. Earlier, everything was planned separately. And it often happens that, figuratively speaking, one pulls one way and the other pulls the other way. Now a single system for planning will be in operation.

/Question/ And how is this affecting the quality of the APK products?

/Answer by Zaur Devidze/ The very principle of singular planning for production, procurements and processing opens up broad opportunities for achieving improvements in quality. Indeed, what was the situation earlier? The producers of goods and also the collectives of processing enterprises all had their own plans. And although timid attempts were made to balance them, no meaningful results were achieved. Many examples could be cited confirming this fact. It is sufficient to merely recall those problems which arose last year during the tea and citrus fruit harvest period. The workers attached to processing enterprises, which as is well known belong to another department, constantly referred to the poor quality of the raw materials. The leaders of farms referred to delays in the acceptance of the raw materials and this they maintained accounted for the deterioration in the quality of plantation and

orchard products. Thus it developed, as the saying goes, that Ivan blamed Petr and the work suffered, losses increased and not everything grown was delivered to the consumer. Today this obstacle has been eliminated by the very structure established for planning and administration.

/Answer by Soso Zhvaniya/ And not only this. I would like to touch upon still another very important aspect of planning. How many recent problems were associated with the fact that several farms in the same rayon were subordinate to different ministries and departments? This could only lead to chaos in planning. Let us take Gardabanskiy Rayon. There are 34 farms here. Thirteen of them belonged to Goskomselkhozproizvodstvo and 21--to the Ministry of the Fruit and Vegetable Industry. Is it necessary to point out how many difficulties this created? And not just in planning. Today this problem has been eliminated. A territorial summary plan for the social and economic development of the APK is being prepared for each rayon. Moreover, it also plans the activities of organizations and enterprises of ministries and departments located in the rayon which are not subordinate to Gosagroprom.

/Question/ And how is this affecting the construction plans for enterprises?

/Answer by Boris Rabinovich/ This is a very important subject. On more than one occasion we witnessed situations in which processing enterprises were built without taking into account the raw material base. Frankly speaking, the planners were not always guilty in this regard. They performed here only in the role of executive agents as they carried out the task. But possibly this was the result of the isolated conditions which prevailed at the time. Thus a canning plant was erected in an area where one was actually not needed. Storage bases were built far from the areas where the products were being produced. Much could be said concerning this subject. Indeed the entire national economy sustained losses and the number of railroad and motor transport shipments increased. In this instance it was possible to discuss improvements in the economic mechanism as a result of planning. Or take similar services in different departments and ministries; they only hindered one another.

/Answer by Shota Kikaleishvili/ If you please, this was the problem of problems. There was a conflict among the interests of the various departments and ministries, with each searching for an advantage for itself. In addition, a great amount of parallelism was obvious in the work being performed by the planners. Yes and the staff was inflated. One merely has to look at the planning organs, which today are concentrated in Gosagroprom. Earlier, the number of workers assigned to them reached 590. At the present time -- 270. The question arises as to whether or not this will have an adverse effect on their activities. Accepting full responsibility for my own words, I would say not. To the contrary, a greater return will be realized from our work and there will be fewer problems. And this is one of the greatest advantages of integration.

/Question/ Will this reorganization serve to expand the independence of farms in the area of planning?

/Answer by Zaur Devidze/ Beyond any doubt. It is no secret that only recently about 70 percent of the planning indicators were provided from on high. And

they were not always based upon the potential possessed by the farms or enterprises. Hence the faulty system of correcting plans subsequently. And they were unable to combat this system or finally eliminate this phenomenon. All of the prerequisites needed for accomplishing this have now been created.

/Question/ Recently there has been more discussion concerning the need for making greater use of the normative methods for planning. Is this not so?

/Answer by Soso Zhvaniya/ There is no need for continuing. The question is quite understandable. At the present time, we have an opportunity for introducing the methods for normative planning into operations on a more extensive scale. But a great amount of work remains to be carried out in this regard. In particular, the scientific-research institutes of Gosagroprom have already been tasked with furnishing assistance in the development of scientifically sound norms. This will make it possible to employ the new methods for planning and economic stimulation, to expand the rights of kolkhozes, sovkhozes, enterprises and organizations of the agroindustrial complex in solving economic problems and to make more extensive use of the achievements of scientific-technical progress. Other important concerns include: raising the scientific validity of plans, ensuring the use of an all-round approach for solving production problems, complete conservation and high quality processing of products and the development of a production and social infrastructure in the rural areas. In addition, the number of planning indicators and other tasks being made available to kolkhozes, sovkhozes and other enterprises of the agroindustrial complex will be reduced substantially.

/Answer by Shota Kikaleishvili/ Here it should be stated that the plans of farms are presented to a higher organ after they have been discussed during meetings of labor collectives. Moreover, the overall volume of agricultural products sold to the state must not be lower than the average annual level achieved over the past three years. It was recommended that we examine the rational distribution of the processing industry when developing long-range and annual plans for the formation of specialized raw material zones. I have in mind the creation on this basis of integrated agroindustrial associations, combines and enterprises, for ensuring the complete use of raw material resources, the production of high quality food products and industrial goods and a reduction in transport expenses.

/Question/ What innovations are expected in social planning?

/Answer by Boris Rabinovich/ It can be stated that there will be great changes in this regard. Indeed, just as it was earlier. The ministries and departments were not responsible for the development of a farm or village from a social standpoint. They were mainly interested in the production of goods. Gosagroprom now bears complete responsibility for the social development of the rural areas. Thus, economic and social development is in the hands of one authority. And this is completely proper. There is the axiom which holds that in the absence of social development it will be more difficult to achieve an increase in labor productivity or improvements in the economic mechanism as a whole.

/Answer by Shota Kikaleishvili/ During the 27th Congress of the Communist Party of Georgia, it was stated that the republic's Gosagroprom is presently taking

its initial steps and, taking into account accumulated experience, it must accelerate to the maximum possible degree the formation and working out of the new organizational structure and it must ensure that the agroindustrial complex is truly planned, administered and financed as a single entity. The principal goal of specialists attached to the Main Administration for Planning the Social and Economic Development of the Agroindustrial Complex is that of solving this task in a rapid and successful manner. They are fully resolved to create an orderly and uniform system of planning and to establish a reliable foundation for thorough work by all subunits of Gosagroprom and particularly by its primary administrative element -- rayon agroindustrial associations -- which can and must increase considerably their contribution towards carrying out the Food Program.

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AGRO-ECONOMICS AND ORGANIZATION

PASKAR ON AGROPROM INTEGRATION, NEW ECONOMIC PLANNING

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[Article by P. Paskar, first deputy chairman, USSR Gosplan: "Agro-industrial Integration in Action"]

[Text] The broad program of organizational and economic measures outlined in the Basic Directions of Economic and Social Development of the USSR for 1986-1990 and the Period Until the Year 2000 envisions the ways of developing agro-industrial integration and of combining the efforts of all branches of the APK [agro-industrial complex] to achieve high end results. As was noted at the 27th CPSU Congress, "a decisive turning point is needed in the agrarian sector, in order already during the 12th Five-Year Plan markedly to improve food supply. It is planned to more than double the growth rate of agricultural production and to provide a substantial increase in the per capital consumption of meat, milk, vegetables and fruit."[1]

But for this it is necessary to change the rural socio-economic situation and to create conditions for more thorough integration and guaranteed production. Solving these tasks is taking place along with simultaneous modernization of the planning mechanism (implementation of the transition of APK branches to self-repayment; granting greater independence to enterprises, kolkhozes and sovkhozes; developing the creative initiative of labor collectives; and introducing new forms of organization of labor and production technology).

Improving the quality of production and of all APK work is a special issue, as was emphasized at the congress. It is one of the most important national economic tasks. It touches the interests of all of society and is a kind of accelerator of our progress. High quality is becoming a general indicator of scientific and technological progress, of the level of production organization and of labor standards and discipline.

APK is a gigantic conveyor which gives the Soviet people food products and the plants and factories raw materials to manufacture clothing, shoes and many other goods. Consequently, the economy depends greatly on qualitative work by the multi-million person army of farmers, animal husbandmen and all the partners in the APK.

The agro-industrial complex as an organizational system began to be formed after the May 1982 CPSU Central Committee plenum, which approved the country's Food Program for the period up to 1990. During the 11th Five-Year Plan it turned into a major inter-branch formation in the USSR economic system.

In 1984 the branches included in the APK (including branches which supply the APK with means of production) developed products worth 395 billion rubles, and the value of fixed production capital was 476 billion rubles. The average annual number of workers employed in APK production branches has reached 45.4 million people.

By comparison with 1980 the volume of APK products increased by 48 billion rubles and production capital increased by 110 billion rubles.

In 1984 the agro-industrial complex constituted approximately one-third of the gross national product, fixed production capital and number of workers. Thirty six percent of national income is created in the agro-industrial complex. APK end products provide approximately 75 percent of the overall retail trade fund, in which food products constitute more than 50 percent.

APK ties with the economy are multi-faceted and stable. In essence there is no branch which is not associated to one extent or another with the APK. It is enough to say that of these three spheres, in accordance with the methodology adopted by USSR TsSU [Central Statistical Administration] for calculating the social product and national income of APK components, 15.2 percent of the volume of production of the complex derives from the first sphere (production of the means of production). This production includes products of tractor, agricultural and food-related machine building, mineral fertilizers and chemical means for protecting vegetation, extraction of peat for agriculture, etc., totalling 60 billion rubles.

In accordance with the Food Program and the decisions of the May 1982 CPSU Central Committee plenum, beginning in 1983 new administrative organs began to be formed in the country. I am referring to the creation of rayon, oblast, kray and republic (ASSR) agro-industrial associations. In 1984, 3,109 rayon and 157 oblast, kray and republic (ASSR) agro-industrial associations were in operation. RAPO [Rayon Agro-industrial Association] included 95,975 enterprises and organizations, of which 50,435 are agricultural, 7,849 are industrial, 19,587 are services related and more than 7,300 are construction. The average annual number of workers employed in all RAPO enterprises and organizations was 33.6 million.

According to the USSR Council of Ministers resolution of 23 Jun 83, "On the Procedure for Planning and Material and Technical Supply in the USSR Agro-Industrial Complex System," the enterprises and organizations comprising the agro-industrial complex included enterprises from USSR Minselkhoz [Ministry of Agriculture]; USSR Goskomselkhoztekhnika [State Committee for Supply of Production Equipment for Agriculture]; USSR Minvodkhoz [Ministry of Land Reclamation and Water Resources]; USSR Minplodoovoshchkhoz [Ministry of the Fruit and Vegetable Industry]; USSR Minpishcheprom [Ministry of the Food Industry]; USSR Minmyasomolprom [Ministry of the Meat and Dairy Industry]; USSR Minrybkhoz [Ministry of the Fish Industry]; USSR Minzag [Ministry of

Procurement]; Glavmikrobioprom [Main Administration of the Microbiological Industry]; Tsentrosoyuz [Central Union of Consumers' Cooperatives]; USSR Gosleskhoz [State Committee for Forestry] and USSR Minselstroy [Ministry of Rural Construction].

However, as practice has shown, despite the fact that enterprises of all the above enumerated ministries and departments are included in the agro-industrial associations, only agricultural enterprises and organizations are directly subordinate to them. This is explained by the fact that agro-industrial associations were formed on the basis of agricultural administrations. Even servicing enterprises had departmental subordination. This also resulted in various costs to the mutual relations: the desire at any cost (even to the detriment of agriculture) to fulfill the plan and searches for advantageous orders outside the framework of the agro-industrial complex, which were repeatedly criticized in the press.

Other partners of agriculture also stood on their bureaucratic positions, most of all the processing enterprises. Guided by their ministries, they often erected insurmountable shields in the path of agricultural products arriving for processing. Nor did the workers in the agro-industrial associations in all cases operate at a high level in this regard. Protecting the interests of agriculture, they did not undertake necessary measures to improve the quality of raw materials arriving for processing; devoted little effort to problems of improving selection and seed growing; and did not ensure rhythmic deliveries of vegetables, fruit, cattle, milk and other products to the enterprises.

Commissions on questions pertaining to the agro-industrial complex, which were formed in the union republics and under the USSR Council of Ministers Presidium, although they coordinated the activity of ministries and departments included in the APK and carried out a great deal of work to strengthen the relations among all partners, were never able to overcome bureaucratic disassociation.

All of these shortcomings were emphasized with particular force in the April 1985 CPSU Central Committee plenum, which as a most important condition for improving the effectiveness of the activity of the agro-industrial complex, demanded that the task advanced in the Food Program of planning, financing and administering the APK as a single whole at all levels, be implemented.

In connection with the CPSU Central Committee and USSR Council of Ministers resolution, "On Further Improving the Administration of the Agro-Industrial Complex," it was recognized as necessary to form a union-republic USSR State Agro-Industrial Committee (USSR Gosagroprom) on the basis of USSR Minselkhoz; USSR Minplodoovoshchkhoz; USSR Minmyasomolprom; USSR Minpishcheprom; USSR Minselstroy and the USSR State Committee for Production and Technical Support of Agriculture, and correspondingly abolish them.

The resolution determined that USSR Gosagroprom -- the central organ for state administration of the country's agro-industrial complex -- along with the councils of ministers of the union republics is responsible for increasing production, fulfilling plans for deliveries of agricultural products and ensuring their complete preservation, and high quality processing and

substantial expansion of the assortment of food products. The committee was granted appropriate rights and authority in the area of planning, financing and providing material and technical resources for the agro-industrial complex. Decisions made by USSR Gosagroprom within the areas of its competence are mandatory for execution by all ministries and departments, as well as institutions, associations, enterprises and organizations.

USSR Gosagroprom carries out its activity under the leadership of the USSR Council of Ministers. The gosagroproms of the union republics, agroproms of the autonomous republics, krays and oblasts, and rayon (okrug) agro-industrial associations carry out their activities under the leadership of the councils of ministers of the union and autonomous republics and the ispolkoms of kray, oblast, rayon (okrug) soviets of peoples deputies.

By this resolution the CPSU Central Committee and USSR Council of Ministers made it incumbent upon the Communist Party central committees and councils of ministers of the union republics and USSR Gosagroprom to ensure the creation, taking into account specific circumstances, of union republic state agro-industrial committees (gosagroproms) in the union republics; and agro-industrial committees (agroproms) in the autonomous republics, krays and oblasts.

Restructuring of the work of okrug and rayon agro-industrial associations is forthcoming, based on their organizational consolidation as unified organs of territorial administration over the farms, organizations and enterprises included in the agro-industrial complex.

Rayon agro-industrial associations have an increasing role as the primary links in the agro-industrial complex system, in guiding the economic activity of enterprises and organizations included in the complex; creating conditions for their effective work; and increasing the interests of all workers in the end results of their labor. The associations have been given responsibility for introducing collective contracting and cost accounting in all production elements; organizing the work of a single engineer service; improving the supply of material and technical resources; developing processing and storage bases in kolkhozes and sovkhozes and, of course, organizing deliveries and sale of products and fulfillment of established targets for delivery of products in the established assortment.

The agro-industrial complex is taking shape as a result of social division of labor and the concentration of differentiated labor processes and particular isolated types of labor activity at various stages of societal development.

With the acceleration of scientific and technological progress social division of labor in its direct form, specialization of production, intensifies. As specialization deepens it acquires a vividly expressed more narrow nature, both in agriculture and industry. These processes have their own special features in agriculture. Thus, the application of industrial technologies in animal husbandry and the singling out of such branches as poultry raising and swine breeding, which specialize in the production of the corresponding products, does not set them apart from the main means of production and agriculture -- the land. To the contrary, they are interested in more

effective use of the land, based on the application of crop rotation to obtain balanced fodder.

In his day, Marx noted in "Kapital," that: "The Capitalist method of production is completing the rupture of the original kinship between agriculture and industry, which the immature and undeveloped forms of both combined. But it is creating, at the same time, the material prerequisites for a new and higher synthesis, the uniting of agriculture and industry on the basis of their contrastingly developed forms."[2] The dialectic law of agro-industrial cooperation discovered by Marx was further developed in the works of Lenin, which linked the possibility for its formation to definite economic and social prerequisites, the realization of scientific and technological progress and social division of labor.

The party has always considered the development of agro-industrial integration to be a matter of great importance to the state. Back in November 1929 the VKP(b) Central Committee plenum considered it necessary to create in all possible cases integrated sovkhoz-kolkhoz associations with coordinated economic plans; a common technical base (tractor columns, repair shops, etc.); common enterprises for the processing of agricultural products (creameries, cheese and flax making factories, mills, etc.).

A number of new branches and sub-branches are appearing. This, in turn, requires the establishment of closer functional ties between isolated producers (enterprises and other structural entities), since there is being created an internal need for them to implement professional contacts with one another. This explained by the fact that at this stage of development of society a large number of specialized firms of various branches take part in the creation of the end product. Labor cooperation is intensifying under conditions of the new economic base, as a result of which the product is more a combination of social (cooperative) activity.

The criteria for these processes are improved effectiveness of social production and the achievement of high end results. The restructuring of the country's agro-industrial complex is called upon, most of all, to provide true integration, close coordination of this branch and heightened responsibility and interest on the part of all partners in highly effective work to achieve a common end result -- an increase in production and higher quality of food products, as well as raw materials for industry.

Numerous examples could be given showing how the new approaches to management of the APK are being implemented in practice, and how effective they are. Here is one of them. The recently organized Kuban agro-industrial combine in Timashevskiy Rayon, Krasnodar Kray is operating on a non-departmental basis and on the principles of full cost accounting. This combine is a major complex. Here products are manufactured processed and sold to consumers. It includes 56 enterprises which have been granted independence, but which are united by the common task of obtaining a high end result; 12 stores; a construction trust; a design institute and the Agrosnab administration.

Only the volume of deliveries into the all-union fund and budget payments have been determined for the combine. This has facilitated increased

resourcefulness and efficiency, since the managers and specialists have had the opportunity to manage their resources independently.

Tea factories which had not been redesigned for 25 years became part of the combine. A shortage of processing capacities held back tea leaf production, which directly harmed the economy of the enterprise. Immediately after its organization the combine administration spent one million rubles for technical retooling of the tea factories, the capacity of which increased 1.5 fold. And, for the first time throughout their period of activity, they returned 1.5 million rubles of profits (previously losses were 0.5 million rubles).

Much has been done in the combine to implement the principle of self-repayment: contracting and cost accounting with the use of checks as the form of control. Economic operating conditions are being made more equitable. Planning from the achieved level has been done away with. Analysis has shown that this is not objective and does not provide for the equal development of production. It turned out that higher volumes of production were planned for those enterprises which produced more. Now the determination of plan targets is based on the provisioning of resources.

A financial and accounting center has been created at the combine with the authority of a bank for the branch. In it are found farm and enterprise accounts. Economic operations among partners have been greatly simplified and accelerated. It became possible to change the procedure for credit, budget payments and financing of capital construction. The need for credit was sharply reduced by speeding up monetary exchange. As a result, in 1985 alone more than 55 million rubles were freed up to be used by other branches of the economy.

Products are sold through their own stores at no loss to the combine or the community. In the future it is planned to eliminate subsidies, including for the production of meat and certain other products. In 1985 the need for subsidies was reduced by almost 4 million rubles and there was a marked increase in production.

Thus, self-repayment is becoming a reality at the Kuban Combine, although to achieve it fully it will be necessary to carry out a great deal of work to reduce production costs and expenditures. Improvement of the economic mechanism at the combine is continuing. Many problems still remain to be solved. But already the results of agro-industrial integration are clearly visible. Weather conditions were unfavorable in 1985 for the Kuban agricultural workers. However, this had little effect on the economy of the combine. Production increased and labor productivity rose. The kolkhozes and sovkhozes obtained 46 million rubles profit, which was 15 percent higher than the average annual level during the 10th Five-Year Plan.

Thus, all necessary prerequisites are being created under the new conditions of management of the agro-industrial complex for accelerating its development; providing for increased production effectiveness; improving the use of the capability and the allocated material and technical resources created in its branches; and concentrating the efforts of all workers at the complex toward

solving the main tasks -- increasing the production and supply of food products to the population.

During the 11th Five-Year Plan a definite step forward was made in solving the food problem. The party consistently and purposefully carried out a policy to accelerate the development of the agro-industrial complex and strengthen the material and technical base. More than 262 billion rubles of capital investments were directed toward these aims, including 216.9 billion for agriculture. Equipment, machinery and other material and technical resources were basically delivered to the kolkhozes and sovkhozes in accordance with the targets of the Food Program. Housing, cultural and personal services and road construction in rural areas were successfully developed.

The measures taken made it possible to increase substantially during the 11th Five-Year Plan purchases of cattle, poultry, milk, eggs, vegetables, fruit and grapes. In 1985 processing branches fulfilled plan targets for the production of meat, animal fat, rich cheese, dairy and fish food products; pastry goods; lump sugar and a number of other food products.

As a result, in 1985 there was an increase over 1980 in the per capita consumption of food products: of more than 3 kg of meat; 5 kg of milk; 9 kg of vegetables; 7 kg of fruits and berries and 21 eggs. These data indicate that the decision of the May 1982 CPSU Central Committee plenum to increase the amount of production of high value food products is being carried out.

However, as was noted at the 27th Party Congress, overcoming the lag in agriculture is proceeding slowly. The targets of the 11th Five-Year Plan for increase in gross production and labor productivity were underfulfilled. There was a substantial shortage of grain, sugar beets, sunflower, potatoes, and food and vegetable products.

In processing branches of industry, during 1985 plan targets for the production of granulated sugar, vegetable oil, margarine products, canned fruits and vegetables, mixed feeds, vitamin and protein supplements and nutrient yeasts were not fulfilled.

Among the main directions for improving the effectiveness of the agro-industrial complex, as M. S. Gorbachev emphasized in his report at the 27th Congress, is reducing losses of the products of fields and farms. Additional resources for consumption can reach 20, and in some types of products even 30 percent. At the congress it was rightly noted that costs of eliminating losses are two or three times less than those of increasing production by the same amount. The CPSU Central Committee and the government have defined steps to be taken to reduce losses.

The material and technical base of the APK will continue to develop consistently in the future. The process of intensification of agricultural production and of shifting to the intensive path of development of other branches in the agro-industrial complex is to be substantially accelerated. During the 12th Five-Year Plan it is planned to increase tangibly the effectiveness of agricultural production; improve yield in plant growing and

productivity in animal husbandry; and achieve a significant savings of material and labor resources.

It should be emphasized that in the Basic Directions the most important indices for development of the agro-industrial complex for 1990 are foreseen as basically in accord with the targets of the country's Food Program, and in the period up to the year 2000 a further increase in the production of APK products is planned.

An increase of 14-16 percent is planned in the average annual volume of production of agricultural products, and a 21-23 percent increase in labor productivity in the public sector is planned for 1986-1990. It is assumed that the increase in production will be implemented mainly through intensive developmental factors and the introduction of the latest achievements of science, technology and advanced practice.

A special feature of the new five-year plan is the fact that the absolute increase in production is more than double the amount of growth achieved in the 10th and 11th five-year plans. Another characteristic is that it is planned to obtain increased production by improving the effectiveness of production, with rates of production increase higher than the growth rates of capital investments and material and technical resources.

The calculations for the Basic Directions presume an increase in yield and a growth of animal husbandry productivity; reduced expenditures for feed necessary to produce a centner of animal husbandry products; as well as reduced expenditure of fuel and other material resources.

The party is attributing more and more importance to the problem of the stability of agricultural production, and most of all agriculture.

Grain production is the foundation of the country's food and fodder fund. The average annual harvests in recent years were less than the level of the 10th Five-Year Plan. This markedly complicated satisfaction of the country's need for grain. Except for the KaSSR virtually no republic is meeting its requirement for grain through its own production. Fertilizer is being applied inadequately for grain crops and seed production is at a low level. The introduction into production of higher yield varieties is poor, as a result of which 25-30 years are required in the country for complete strain changing, as opposed to an optimal period of 10-15 years. Scientifically based systems of agriculture are extremely slow to be assimilated, although they do not require large capital investments.

Elimination of these shortcomings will make it possible by 1990 to increase nationwide grain production to 250-255 million tons. Decisive importance in increasing grain production is being placed on further expanding the introduction into production of intensive technologies for growing grain crops, which envision the use of highly productive varieties and hybrids, completely balanced nourishment and a system for protecting vegetation from pests, disease and weeds. In 1985 approximately 17 million hectares of wheat and almost all corn was grown using industrial technologies. Practice is demonstrating that even under unfavorable weather conditions the farms are

obtaining 40-50 centners per hectare of grain in these fields, which is 15-20 centners more than using traditional technologies.

There are also reserves for increasing the gross grain harvest to be found in the structure of grain farming. In a number of areas corn is being grown in insignificant amounts, although its yield is much higher and more stable than that of other grain crops. An increase in the areas sown in corn is planned, especially on irrigated lands. This will require that sovkhozes and kolkhozes obtain appropriate equipment and will necessitate the creation of a new material base for processing and storage of corn. Scientific institutions and agricultural organs are faced with an important task of more fully supplying the farms with high yield hybrids and varieties of seeds. This will make it possible to end their import. The measures mentioned for intensification of grain farming will impact on increasing the yield of grain products. By 1990 it will surpass by more than 30 percent the level of the 10th Five-Year Plan and by 40 percent that of the 11th Five-Year Plan. A further increase in yield is planned by the year 2000.

Animal husbandry is faced with complex problems. Despite positive advances noted in recent years in its development, the fodder base has still not been strengthened. The production of fodder per standard head of cattle constitutes a little more than 26 centners of feed units, as opposed to a normative requirement for 30-40 centners.

One of the reasons for the unsatisfactory state of the fodder base is the low yield of fodder crops, especially of natural haymaking and pastures. Countrywide, during 1981-1984 the yield of hay crops was approximately 150 centners per hectare; that of perennial grasses for hay was 22.5-27.3 centners per hectare and that of natural hay was 5.8-7. Large losses and low quality of fodder crops also played a part.

This impacts on the productivity of cattle and poultry and on the intensification of animal husbandry. Only 69-70 percent of the potential capabilities of Soviet strains of cattle are being used. First priority in solving the problems of animal husbandry is to increase the quality of fodder on the basis of extensive use of the modern achievements of science and advanced experience.

In the Basic Directions it is planned to increase meat production to 21 million tons (slaughter weight), milk production to 106-110 million tons and egg production to 80-82 billion eggs by 1990. The main stress is being placed on intensive development of animal husbandry. It is planned to provide the main increase in products by improving the productivity of domestic animals, while limiting the per head growth rates. Whereas it is planned to increase production of animal husbandry products 17 percent by 1990, to the level of 1983, the increase in the head of cattle is to increase only 1 percent including 3 percent for cows. There is to be a 2 percent increase in swine and a 5 percent increase in sheep and goats.

During the course of accomplishing the targets of the 12th Five-Year Plan it is planned to bring into accord the relationship between the share held by various branches of animal husbandry and the structure of the country's fodder

base, in which pasturable, coarse and rich fodders play the predominate role. Cattle and sheep raising and the other branches which use these fodders correspond to this nature of the fodder base. The main thrust in cattle raising will be milk and meat cattle, which provides for the optimal use of the natural and economic conditions of different zones in the country.

At the same time it is planned to slow somewhat the expansion of swine growing, the development of which is based on concentrated fodder. In this branch the main attention will be paid to increasing daily weight gains and bringing them to 500 grams or more, as opposed to 300 grams in 1983, and to reducing the expenditure of fodder per centner of weight gain down to 7-8 centners, as against 9 centners of feed units spent at the end of 1985.

In the development of poultry farming the main task is to meet the requirement for eggs in all regions of the country through their own poultry factories.

On every kolkhoz and sovkhoz, in each rayon, and in all oblasts, krays and republics it is necessary to put into action all existing reserves, and they are truly unlimited.

Animal husbandry is developing rapidly in Petrovskiy Rayon, Stavropol Kray. In 10 years milk obtained per cow increased to a rayon average of almost 800 kg, or 28.7 percent, and butter delivered per head of cattle increased by 94 kg, or 26.8 percent. Since the rayon is in the arid northwestern zone of Stavropol, sheep farming is being developed intensively there. During four years of the 11th Five-Year Plan 32 million rubles of net product were obtained from sales of sheep-breeding products, and the profitability of the branch was 65 percent.

The Basic Directions devote great attention to the development of subsidiary farming at enterprises and organizations and the private plots of citizens. The country has already acquired positive experience in carrying out agricultural production on subsidiary farms by the forces of industrial enterprises, associations and state institutions. Great importance is being attributed to this in the enterprises of the ministries of the USSR coal industry, nonferrous metallurgy, railways, and in Rostov and Tyumen oblasts and the Bashkir ASSR.

In recent years measures have been taken to develop private subsidiary farms. This involves creating conditions which increase the interest of citizens in carrying out private farming and assisting kolkhoz and sovkhoz workers in the acquisition of young animals and fodder.

At present approximately 8 million hectares of agricultural land are in the personal use of kolkhoz peasants, workers and employees. At the beginning of 1985 the population had 24 million head of cattle, including 13.4 million cows, as well as 14.1 million pigs and 32.5 million sheep and goats. The share of private plots in the overall volume of agricultural production is still sufficiently high and comprises: more than 55 percent of potatoes and approximately 30 percent of the production of vegetables, meat, milk and eggs.

Further concern for the development of private subsidiary farming, based on allocation of haymaking and pastures, sale of cattle, seed, fertilizer, young cattle and poultry, will serve to augment the country's food resources.

Great and complex tasks face the workers of the food, meat and milk industry during the 12th Five-Year Plan. It will be necessary to achieve an increase in production volume of 18-20 percent; to increase production of granulated sugar from sugar beets 1.3 fold by 1990 in comparison with 1985; increase production of vegetable oils more than 1.6 fold and that of canned fruits and vegetables almost 2 fold. In 1990 it is planned to produce 11.7-12.2 million tons of meat; 1.5-1.7 million tons of animal fat; 31-32 million tons of milk products and 1 million tons of cheese from raw materials from state resources.

In accordance with the tasks stemming from the Basic Directions, questions are being posed more sharply concerning the more complete and comprehensive use of agricultural raw materials and by-products in the food industry. Every year more than 100 million tons of by-products from the processing of agricultural raw materials is formed at food industry enterprises. Approximately 70 percent is used in an unprocessed form as animal feed and only 20-25 percent goes toward the development of balanced fodder.

An important reserve for increasing the production of high demand food products comes from the re-profiling of freed capacities of the alcoholic beverage, wine making and liquor industry, as well as from the more complete use of fruit and berry raw material resources and grapes.

Increasing the volume of production of agricultural products and combating losses, as was already stated, requires that the increased harvest be preserved and reach the consumer. For this it is necessary to create a base for storage and processing of agricultural raw materials, most of all potatoes.

The country's Food Program provides for a broad system of measures to reduce losses of products in the agro-industrial complex system. Construction of warehouses and storage facilities for fodder, mineral fertilizers, chemical pesticides, elevators and graneries is planned. A special aspect of this program is the placing into operation of storehouses and refrigerators for potatoes, vegetables and fruits. At present approximately 45 percent of this requirement has been met.

In accordance with the Food Program, during 1981-1990 storehouses and refrigerators for the simultaneous storage of 18.6 million tons of products must be introduced nationwide. The required capital investments have been allocated for these purposes. However, this target is not being satisfactorily fulfilled. Frequently, local agro-industrial associations have poor control over the course of construction and are not rendering the necessary assistance to construction organizations in placing facilities into operation in a timely manner.

At the same time, this work is being carried out purposefully and thoughtfully in a number of republics, krays and oblasts, for example, in the UkSSR. In Kharkov Oblast organizations not only from the agro-industrial complex, but

also from other ministries and departments, are involved in the construction of storehouses. This will enable the oblast to almost fully meet the need for storehouses and refrigerators for fruit and vegetable products by the end of the 12th Five-Year Plan. The new administrative organs of the agro-industrial complex are called upon to establish effective control over the placing into operation of storage facilities, and not only ensure fulfillment of the targets for their construction envisioned for 1986-1990, but also significantly surpass them.

An important reserve for increasing marketable potato resources is through potato processing. The country is first in the world in potato production. In recent years farms of all categories have been obtaining more than 80 million tons of potatoes annually, which constitutes approximately 30 percent of worldwide production. State purchases of potatoes have increased from 14.6 million tons average for 1976-1980 to 16.4 million tons average during the 11th Five-Year Plan. However, the needs of the population for this most important food product are not being fully met and interruptions in potato trade occur. As a result, a high price level is maintained on kolkhoz markets, which is three to five times higher than state prices, even in autumn, during the potato harvest period. Substantial losses of potatoes during storage are permitted.

At the same time, the processing of potatoes into potato products with the use of modern technologies, which in the developed countries is one of the main methods of reducing losses and which makes it possible to develop an extensive assortment of potato products (fried, quick frozen, dry), which are in great demand and which have long storage life, is being given inadequate attention. In recent years the production of potato products on our farms has virtually remained constant.

In accordance with the targets of the Food Program the production of dry, fried and frozen potato products will increase by 1990 to 170,000-186,000 tons per year. This will require, during the 12th Five-Year Plan, the implementation of an extensive program for the construction of new capacities and the establishment of highly productive integrated production lines to make dry potato puree (granulate) and garnished frozen potatoes. The machine building ministries (Minlegpishchemash [Ministry of Machine Building for Light and Food Industry and Household Appliances], Minkhimmash [Ministry of Chemical and Petroleum Machine Building] and Minstroydormash [Ministry of Construction, Road and Municiple Machine-Building]) must act to implement this program with a sense of high responsibility.

To accomplish the above enumerated tasks it is necessary to strengthen the material and technological base of the processing branches in the agro-industrial complex. Despite the fact that during the 11th Five-Year Plan new production capacities were put into operation for the processing of agricultural raw materials and many shops were redesigned and retooled, the material and technological base of the processing industry is still at a low level. Machinery at a number of flour grinding, fruit and vegetable, sugar, meat and milk industry enterprises is old and obsolete. Many enterprises are not supplied with steam and water and lack storage depots and refrigerators for raw materials, as well as cleaning equipment. Retirement of fixed capital

in these branches is two to three times lower than the norms, which leads to their significant aging.

The CPSU Central Committee and USSR Council of Ministers resolution, "On Accelerating the Development of the Material and Technological Base of the Processing Branches of the Agro-Industrial Complexes During 1986-1990," is aimed at eliminating these shortcomings. Substantial capital investments have been allocated; the delivery of integrated technological lines and new types of equipment are envisioned; and measures are planned to place into production highly effective technological processes and to produce better types of food products and improve their quality.

All of this will make it possible during the 12th Five-Year Plan to increase substantially the production volume of products in all the processing branches, including consumer cooperatives.

It is the task of the newly created APK administrative organs and national and local planning organs to exercise constant control over the implementation of this resolution and to ensure that annual plans fully reflect the targets established therein. Much depends on how successfully workers in all APK branches work in 1986, the initial year of the 12th Five-Year Plan.

In agriculture, primarily through intensive factors, it is planned to obtain no fewer than 26 million additional tons of grain and to increase meat production to 7.3 million tons and milk production to 100 million tons, which is higher than the average annual production volume during the 11th Five-Year Plan. Processing industry branches are to increase substantially the output of high quality meat and milk products, canned fruits and vegetables, sugar, vegetable oil, highest quality flour, groats and other food products and to expand the production of prepared food, culinary products, fresh-frozen fish, live fish and fish products.

Formation of the new agro-industrial complex administrative organs has entered its final stage. Their important task is to create for the sovkhozes, kolkhozes, and other enterprises in the agro-industrial complex conditions which make possible the maximum use of economical methods of management to improve production effectiveness; ensure high growth rates of product quantities and obtain the maximum end result. For this purpose, trivial supervision of the farms should be eliminated, their initiative and economic independence should be developed and the responsibility of managers for the unconditional fulfillment of plan targets increased.

The new organizational forms of management also require new economic approaches, under which kolkhozes and sovkhozes will have an interest in producing more products, obtaining higher incomes and conducting their economic activity on the principles of self-repayment.

The application of Lenin's idea of tax-in-kind under modern conditions will have a favorable influence on the entire APK managerial system. A firm plan for state procurements and the organization of counter-sale of material resources to kolkhozes and sovkhozes without funds, as incentives, all must imbue the economic mechanism with fundamentally new qualitative content.

Determining equally intense targets for labor collectives and objectively assessing the results of their work is an important incentive factor. This will be facilitated by shifting to the new planning methods (economic evaluation of the land; degree of supply with fixed capital and labor resources; progressive norms) and expansion of the rights of farm managers; increasing their responsibility for plan fulfillment; simplifying the procedure for financing in capital construction; and maintaining a close link between material incentives and the end results of labor.

However, in the final analysis everything will depend on the cadres working in APK branches, their competence; responsibility in observing national interests and unity of words and practical actions, and on how quickly each cadre, from manager to ordinary worker, will overcome inertia; learn to think and work in the new manner; and boldly, resourcefully and innovatively conclude every task which is begun.

Only such an approach will make it possible to turn the country's agro-industrial complex into a highly effective sector of the state economy and successfully solve the tasks set forth before its workers by the 27th CPSU Congress.

FOOTNOTES

1. PRAVDA, 26 Feb 86.

2. K. Marx and F. Engels, "Sochineniya" [Works], Vol 23, p 514.

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AGRO-ECONOMICS AND ORGANIZATION

RAPO DEVELOPMENT, FUNCTIONING WITHIN KAZAKH APK

Alma-Ata IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSR, SERIYA OBSHCHESTVENNYKH NAUK No 5, Sep-Oct 85 pp 57-63

[Article by V.L. Galyanov and T.A. Kezdikbaev: "RAPO--A Component of the Agro-industrial Complex"]

[Excerpts] Agro-industrial integration is an oubjective process at a contemporary stage, called for by a development of the productive forces of society and by conformities to economic laws. The transition to intensive methods of economic management, the technical refurnishing of all branches of the national economy, the assimilation of new technology, and the increase in the effectiveness of production is becoming today a vitally important necessity. Agro-industrial integration, on all levels of its development, promotes in many respects the solution to these problems. It has been called forth to supply a qualitative improvement throughout the national economy and above all to increase sharply the output of agricultural production in the nation.

In the beginning of the 1980's, as a result of a reinforcement of the integrating processes, the agro-industrial complex (APK) was formed as a very important structural element of the nation's unified economic complex. The essence of the APK as an objective economic category of developed socialism consists in the internal interrelation of the sectors and areas that comprise it and which aim at supplying the production of necessary goods and raw materials in assigned volumes and variety.

At the present time, according to the scale of production and socio-economic significance, the APK occupies first place among other national-economic complexes. The successes of its economic development are judged by the presence of a strict internal proportionality between the interrelated links of a single production system.

An organizational disjointedness of its links and branches, a frequent failure to combine its economic interests, and a weak coordination of the material stimulation of labor collectives with the final results of production were the basic shortcomings of the earlier functioning economic mechanism.

In recent years, in connection with the growth in production scale and the strengthening of labor division processes, inter-branch relationships have

become significantly more complicated. In the republics, oblasts, and rayons new branches and organizations have sprung up which serve kolkhozes and sovkhozes. A network of enterprises has formed for supplying the village with material-technical resources, for equipment repair and maintenance, for bringing in fertilizers, carrying out meliorative operations, construction, transport, and other processes. This has complicated the work of the managers of kolkhozes and sovkhozes, insofar as it has necessitated their dealing with 20 or 30 different organizations. Furthermore, the existing system of agro-industrial complex management has turned out to be cumbersome and multi-runged, with an ungrounded, overgrown managerial apparatus. The necessary unity of branch and territorial management principles has not been provided everywhere. A significant number of the economies were under the jurisdiction of oblast and republic organs and various trusts and unions. Within rayons a single organ of management for the rayon agro-industrial complex was absent. Departmental disjointedness in management led to serious shortcomings in planning and material-technical supply, in carrying out specialization, and in rationally distributing output. It complicated solving the problem of the all-round development of the village. All this demanded a radical restructuring of the management of the entire system of the economic mechanism of the agro-industrial complex.

Decisions of the 16th session of the CPSU and of the May (1982) Plenum of the CPSU Central Committee in particular have sharply defined the path for eliminating the indicated shortcomings. The path consists in a transition to a single system of planning and managing the agro-industrial complex as a single unit on all levels--from the All-Union link to the rayon. For the first time the agro-industrial complex stands out as an independent planning and managing unit; this allows better, more effective combining of territorial, branch, and special-program management and planning, the base of which the final result has been placed--the complete fulfillment of the demands of the nation in foodstuffs and agricultural raw materials. In view of this, special attention is given to the Rayon Agro-Industrial Association--RAPO. Here a full and equal democratic organ of management is actually being formed, which is capable of actively influencing production, and which takes into account first and foremost the interests of sovkhozes and kolkhozes.

At the present time in Kazakhstan rayon agro-industrial associations have been formed, and they function in 19 oblasts and 216 village rayons. They are composed of sovkhozes, kolkhozes, inter-economic formations, and also of enterprises and organizations that serve the sovkhozes and kolkhozes and are engaged in the processing of agricultural output.

The enterprises and organizations which enter into the rayon agro-industrial associations preserve their economic independence, the rights of a juridical person, and their departmental affiliation. Their combined activity is regulated by the model Proposal Concerning the Rayon Agro-industrial Association.

The highest organ of management in the RAPO is the association council, which is made up of the leaders of enterprises and organizations of the rayon and formed by the rayon Soviet of Peoples Deputies. The chairman of the association council is simultaneously the first deputy of the rayon executive

committee chairman and the head of the rayon administration of agriculture. The councils of rayon agro-industrial associations are united democratic organs of management endowed with the necessary economic-distributive and administrative functions. They have the opportunity to exert a real influence on the activity of kolkhozes, sovkhozes, and all enterprises and organizations of the agro-industrial complex.

On the basis of planned figures the RAPO councils define for kolkhozes and sovkhozes the planned indices of the established products list. They present government plans for purchases of agricultural products for approval by the rayon Soviet of Peoples Deputies, examine the plans of other enterprises and organizations which comprise agro-industrial associations, and, with respect to them, take proposals to the corresponding higher organs. The effected changes and planning consistency allow raising the level and quality of planning, and they will facilitate the optimization of the basic proportions of the development of the agro-industrial complex.

The functions of the RAPO councils also include the distribution of apportioned capital investment, budget allocation, and credit limits for kolkhozes, sovkhozes, and other agricultural enterprises, and the distribution of material-technical resources as well. The RAPO councils necessarily possess the right to redistribute, among the enterprises and organizations comprising the agro-industrial association (with their consent), a fixed portion of the material-technical resources and unassimilated capital investments apportioned to them. This is done with the agreement of the higher departmental organs. Moreover, a portion of the material-technical resources will be directed at overcoming weak spots and discrepancies in the activity of the RAPO.

One of the important tasks of the RAPO councils is centralizing the fulfillment of separate production-economic functions. For this specialized subdivisions are created based on inter-economic cooperation; or the performance of these functions is entrusted to the individual enterprises irrespective of their department affiliations. This liberates the kolkhozes, sovkhozes, and inter-economic enterprises from a series of inappropriate functions, and it allows them to concentrate on fulfilling their main task--increasing the output and quality of agricultural production.

The RAPO councils have been given the rights to authorize, based on model standards, rates (tariffs) for good service rendered and work fulfilled by the enterprises and organizations within the association irrespective of their department affiliations, and also to establish prices for cattle, feed, materials, and other resources supplied jointly by kolkhozes and sovkhozes. This means that with the help of price levers, roughly equal conditions are created for RAPO participants in production and the intake of gross revenue, the realization of expanded reproduction, material stimulation, and the solution of social issues. Within the limits of the RAPO, planning work is conducted with respect to increasing the effectiveness of public production, labor division and cooperation, providing the optimum concentration of production output, and providing a unity of the branch and territorial aspects of the distribution of agricultural output and output of the branches which serve agricultural production.

agricultural sectors of the rayon. The purposeful economic work carried out by the RAPO has allowed the rayon to obtain more than 11 million rubles in clear profits yearly during the 11th Five-Year Plan.

The RAPO is successfully introducing into agricultural production the brigade form of labor organization, in which payment is made depending on the final resut, the quantity and quality of production output, and the material and monetary expense. At present 9 brigades and 40 links numbering 812 workers are working on a collective contract in the rayon. They are in charge of 136 hectares of cereal crops, 3,145 hectares of corn as silage and green fodder, 394 hectares of melons, 110 of sugar beets, 64 of grapes, 2 of root vegetables, 717 of annual and perennial herbs, over 2454 birds, and 800 cattle.

In the brigade Soviet agreement between the administration and the brigade is discussed, work totals are summed up monthly, expenditures of labor and monies are analysed, ways of saving on them are outlined, and the coefrficient of labor participation for ecah member of the collective is determined, according to which the sum of workers salaries is determined. As a result the basic economic indices for all economic categories of the RAPO as a whole have improved. In 1983 for example, as compared with 1982, the cost of production fell by 1.8 percent, and the average annual salary of an agricultural worker grew by 73 rubles. The gross output of a single worker was 8,076 rubles against 7,034 in 1982. The return on 100 rubles of basic funds for agricultural purposes grew from 36.1 to 40.4 rubles. The supply of funds for 100 hectares of agricultural land increased by 200 rubles, the supply fo funds for one worker by 400 rubles, and the supply of energy by 1.9 horsepower.

So, the rayon agrarian-industrial association is an essentially new form of economic operation and management both of the agro-industrial complex and of all agricultural production at the level of the rayon. As a government-cooperative formation, it is based on the territorial-branch production principle, and on combining the centralized leadership on the rayon level with the economic independence and initiative of the individual members of the asociation solving the whole complex of interrelated production, economic, and social problems.

In Kazakhstan, on the whole, the formation of a rayon management link has been completed, and there is a definite method of operation under new conditions. This opens a wide expanse for creative search and initiative for the workers, and it provides the creation of the most favorable conditions for the effective operation of the rayon managment link's partners. The activity of the Fedorovskiy RAPO of the Kustanay Oblast and of the Iliyskiy and Enbekshikazakhskiy RAPO's of the Alma-Ata Oblast have shown convincingly the advantage of a central managment for agriculture and the branches that serve it. The combining of forces has allowed an increase in the effectiveness of production in kolkhozes and sovkhozes and in the quality of work. The production program of association partners is now being defined with regard to the interests of the enterprises. Association production funds and financial, material and labor resources have begun to be utilized more effectively. Coordination has improved noticeably during the elaboration of plans and the adoption of operative decisions for interbranch problems. More attention has

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begun to be devoted locally to an improvement of production service and to the material-technical supply of kolkhozes and sovkhozes. The relationships of various farms to industrial enterprises and organizations have been strengthened, and the network of procurement and processing branches has widened. Questions concerning the social development of rural areas have acquired particular meaning.

The rayon agro-industrial associations in the republic are still taking their first steps and are assimilating the new style of economic operation. The problems confronting them are large and difficult, and today there are no ready prescriptions. The formation and reinforcement of the RAPO is a complicated process, and it demands painstaking and consistent study.

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AGRO-ECONOMICS AND ORGANIZATION

PRAVDA VIEWS APK COMBINE'S OPERATIONAL EFFECTIVENESS

Moscow PRAVDA in Russian 21 Feb 86 p 2

[Report by PRAVDA special correspondents K. Aksenov and V. Somov, Krasnodar Kray: "The Combine: Agroindustry--Reorganization Underway"]

[Text] The reorganization now underway in the nation's agroindustry has a reliable foundation. It is provided by the steady strengthening of the agrarian sector's materials and equipment base and by the experience in planning, financing and management accumulated in the course of large-scale experiments. They have been conducted in Georgia, Estonia and a number of other regions.

The Kuban Agroindustrial Combine, for example, which has already been discussed in the press, is of considerable interest. It operates on a nondepartmental basis. The combine not only produces the product, but also processes it and sells it to the consumer. What has the experiment shown? How effective is the new management system? We believe that it would be particularly timely and instructive to discuss this now, while the reorganization is underway.

Under a Single Roof

Two hours of flying, as though freed of earthly concerns. Mikhail Mikhaylovich loves these minutes. He can relax, think and dream his most secret dreams. Returning from the capital that day, however, Lomach was unable to tune himself to his "personal" wavelength. When he closed his eyes, the discussion in the RSFSR Gosagroprom [State Committee for Agricultural Production?] would float through his mind again. An extremely important worker (one of those in charge in the republic's Ministry of Agriculture in the recent past) had reprimanded him:

"Why did you turn over to the tea factories money earmarked for the kolkhozes and sovkhozes"?

Routine and departmentalism are so tenacious!

"During the past 20 years the former Ministry of the Food Industry did not give those factories a single kopeck for reconstruction," Lomach explained as calmly

as possible. "And the shortage of processing capacity was retarding the production of tea leaves. This was a direct loss to agriculture. We spent less than 1 million rubles on the reequipment. The factories' capacity increased 1.5-fold, however. For the first time, they had a profit of 1.5 million rubles instead of a loss of half a million."

Did Lomach convince him? The chill of distrust remained in the other man's intense stare. Lomach had encountered this lack of understanding so many times. What barriers and obstacles the combine had had to overcome during its less than 2 years of existence. The general director now says with irony: "We forced our way through the zone of fire." There is no denying the fact that the idea of establishing an agroindustrial combine did not fit into the conventional pattern.

But Lomach was taken with the idea. He was won over by it at the very beginning. He agreed without a moment's thought to head the combine which was being formed with the kolkhozes, sovkhozes and agroindustrial enterprises of Timashevskiy Rayon. Nor was he bothered by the fact that he would be going from chief of a kray agricultural administration to rayon-level director. The plan seemed like such a good one!

Indeed, all of the farms and the offices servicing them under a single roof, as it were! The combine would be a large complex. The product would be produced, processed and sold to the consumer there. And everything would be based on complete self-financing. M. Lomach considered the economic independence to be the most attractive thing about it. Initiative and many good intentions on the part of a director are sometimes stifled by a lack of it. Here there would be room for exterprising and serious action. Without instructions and orders from above. The only thing set for the combine would be the amount to be delivered to the All-Union stock and payments into the budget. And its resources, of course. Just use them however you consider it necessary.

The Kuban APK [Agroindustrial Combine] is just getting started. Today, it has 56 enterprises vested with independence but united by their common concern with producing a good end result. It has its own trade network of 12 stores. It has its own construction trust, planning institute and Agrosnab [Agricultural Supply] Administration. Has harmony been achieved among the partners?

Face to Face

Before the combine was established (even under the RAPO [rayon agroindustrial association]), each partner strove only for its own gains from production. Sometimes to the detriment of the kolkhozes and sovkhozes. Volumes were distorted, and service plans were exceeded. The output from the fields and farms increased slowly, however, while the basic cost of the product climed rapidly (the spending mechanism functioned flawlessly).

"From now on the partners will produce only that which the farms actually need." This is how the general director began the first meeting of the combine council.

"Excuse me for interrupting," V. Tomilko, head of the rayon agricultural equipment association, said, rising. "I would like to be even more specific. In my

opinion, the servicing organizations should perform only those jobs which are beyond the capabilities of the agricultural workers or are not advantageous for them. Let me explain that. Plans for the technical maintenance of the machinery are sent down to us. This is not a complex operation. It is a small matter for a kolkhoz workshop. The farms were ordered to bring the equipment to us, however. And you know what our rates are like. I'm sorry, but this is an economic absurdity."

As he watched the agitated Tomilko, Lomach thought to himself: "Is he sincere? Or perhaps he senses that the situation has changed...." Mikhail Mikhaylovich learned later that he had advocated changes even before that. "Well, I can rely on him," the general director noted for himself. And he was not mistaken. Tomilko placed the interests of the operation above departmental aspirations. The amount of major repairs performed by the rayon agriculaural equipment association was reduced sharply at his initiative, and whole-unit repair is being extensively adopted. The former volumes in rubles cannot be achieved, however. And the combine approved a plan for the repair enterprise this year which was 400,000 rubles less than last year's.

There was some difficult explaining to do in the party raykom and in the rayon planning commission. The figure was down, after all!

"But you see, the cost of bread, milk and meat will be reduced by this amount, 400,000 rubles," Tomilko argued. "And you can hold us responsible for the readiness of the equipment. Incidentally, it is the highest in the kray. We shall continue to lower volumes...."

But is it going to have to be justified this way every time?

"I am convinced," V. Tomilko says, "that servicing organizations such as ours should not have a state plan. The combine, and elsewhere the RAPO, issues an assignment to the auxiliary enterprise on the basis of requisitions from the farms. It is reduced or increased according to the need...."

Not everything by far has been "worked out" in the combine's management system. Basic changes are in evidence, however. Just when, for example, did the director of a meat combine visit the kolkhozes and sovkhozes and enquire about livestock raising conditions there? Today, however, Ye. Martynenko travels to the sites himself or sends specialists. They arrange for the animals to be shipped out in a centralized manner and strive to see that they are delivered at the highest weight levels.

Why did the meat combine show little concern for this in the past? The products went to the consumers in a depersonalized manner. They were satisfied with two or three kinds of sausages. Gross figures and volumes were the main thing for the kray meat industry association. The products are now sold by the Kuban stores. The meat combine has come face to face with the customer. It has had to give some thought to quality and expand the assortment to 10-12 kinds of sausages. Profits have grown markedly.

And so, no matter which of the partners you take--be it the rayselkhozkhimiya [rayon association for the application of chemicals in agriculture?], the sugar refinery or the dairy--all of them are motivated by a genuine interest in the end result.

On a Self-Supporting Basis

At one point Lomach thought to himself: It has been a long time since any of the managers has complained about the partners. Can it be that everything has finally been worked out? A visit by Ye. Martynenko, director of the meat combine, dispelled the illusion, however.

"We're getting a lot of substandard poultry. This prevents us from turning out first-grade products. But if the kolkhozes and sovkhozes were to receive part of our profits...."

"That makes sense, Yevgeniy Nikolayevich," Lomach said, indicating his support. "Some scientists from Krasnodar are supposed to arrive soon. Stay and listen to what they have to say."

When the visitors arrived, Mikhail Mikhaylovich continued:

"The combine has been placed onto a self-supporting basis. Each enterprise is economically self-sufficient. Each one still operates on its own, however. The economic interests of the partners are poorly coordinated. We simply must have interbranch cost-accounting. When a store sells that sausage or those goods, let us say, let the income be distributed in proportion to the contribution made by the partners. We await your recommendations."

"At the present time, we have no completed studies," the scientists replied.

"How long will it take"?

"Perhaps 4 years," the visitors said without confidence.

"What!" Lomach could not restrain himself. "We have to adjust the economic system in the very near future."

For some time the general director had been taking a close look at the leading subdivisions of his organizations. Their very names indicated a comprehensive approach: section for the production and processing of livestock products. It was the same in the crop production operation. Things were somehow not going right with them, however. Even the functions involved in monitoring the processing were quietly being "shoved off" onto the subdivisions in charge of procurement.

He called in the combine economists. What was the matter? They told him that there were agronomists and livestock specialists in those departments, but no specialists in processing.

"This is our omission, of course," Lomach said. "I believe that the problem lies elsewhere, however. There is no economic linkage between the branches. No matter what the sections are called in the office, there will therefore be little change in production if we do not find a common key to the interests of the partners."

"The difficulty is how to determine the contribution made by the partners to the end result. There are no methods or standards," V. Chernyayev, Lomach's deputy for economics, replied.

"For now, let us see what we can do on our own," Lomach said with a smile to those present. "We have come this far...."

Interbranch cost-accounting in the combine is a matter of the immediate future. And Tomilko is already calculating how the cost-containing mechanism at the repair enterprise will go into full swing. The agronomists are thinking about what needs to be done on the kolkhozes and sovkhozes to increase output of the finished product at the sugar refinery.

Many things have already been adopted for implementing the self-supporting principle: the contract and cost-accounting with a checking system for monitoring. Economic conditions are being equalized. Plans based on what has been achieved have been done away with once and for all. A study has shown that they are not objective and do not ensure an even load. Produce more, as they say, and get an even bigger assignment. The assignments are presently defined on the basis of capability with respect to resources.

The combine has its own finance and accounting center. It has the status of a branch bank. The accounts of the farms and enterprises have been "shifted" to there. The center is in charge of all the APK's financial resources. Economic operations among the partners have been greatly simplified and accelerated. The procedure for granting loans, making payments into the budget and financing capital construction has been changed.

The need for loans has been reduced sharply at the combine as a result of the accelerated turnover of funds. More than 55 million rubles was freed for use in other sectors of the national economy last year alone.

A complete self-supporting operation is no longer a dream, but a reality. Those products which are sold through the combine's own stores do not result in a loss to the combine or to society. The prices of meat and certain other products are somewhat higher than state prices, to be sure, in order to cover expenses. We know that our retail prices are below procurement prices in many cases. And so, the combine plans to stop accepting subsidies in the future. The need for them was cut by almost 4 million rubles last year. At the same time, output was increased markedly. A great deal remains to be done in order to achieve a complete self-supporting situation, however: a reduction in basic cost and outlays.

Last year was a bad one for agricultural workers of the Kuban. The combine's economy was little affected by the weather fluctuations. Output increased, and labor productivity continued to grow. The kolkhozes and sovkhozes gained 46 million rubles in profits, an increase of 15 percent over the average annual level for the 10th Five-Year Plan.

Only a small portion of the products is presently being processed by the combine itself. The industrial enterprises still have a weak base. New plants and residential settlements will be built under the current five-year plan, however.

The reorganization of Timashevskiy Rayon's agroindustry can not yet be considered to be completed. It has considerably strengthened the economic independence of the enterprises, however, and created a favorable situation for complete economic self-sufficiency and self-support and in the final analysis, for accelerating the intensification of production. Therein lies the value of the quest and the experiment.

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AGRO-ECONOMICS AND ORGANIZATION

PROBLEMS OF PROCUREMENT SYSTEM REVIEWED

Moscow ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 10, Oct 85 pp 23-25

/Article by I. Zayets, deputy chief of the Main Administration for APK Problems of the USSR Ministry of Agriculture: "Time Is Fleeting"/

/Text/ One of the most important stages in implementing the USSR Food Program is that of reducing the losses in agricultural products during all stages in their production, procurement, transporting, processing and storage. In the interest of raising the responsibility of the procurement organizations for ensuring complete utilization of the agricultural products grown, USSR Minmyasomolprom /Ministry of the Meat and Dairy Industry/, USSR Minplodoovoshchkhoz /Ministry of the Fruit and Vegetable Industry/, USSR Minpishchprom /Ministry of the Food Industry/ and Tsentrosoyuz /USSR Central Union of Consumers' Societies/ have been required to complete the conversion over, during the 12th Five-Year Plan, to the acceptance of livestock and poultry, milk, potatoes, vegetables, fruit, berries and grapes directly at the kolkhozes and sovkhozes and to the shipping of these products from the farms on transport vehicles provided by the procurement specialists.

In recent years, the field and farm workers and the agricultural and procurement organs carried out a great amount of work in connection with increasing the production and procurements of products and creating the logistical base for more improved forms of procurements. All of this made it possible, together with other economic and administrative measures, to increase during 1984, throughout the country as a whole, the state procurements of milk, livestock and poultry by more than 12 percent, eggs and potatoes -- by 28 and vegetables -- by 20 percent, compared to the average annual procurement volumes for these products during the 10th Five-Year Plan. Roughly 33 percent of the milk, 29 percent of the livestock and poultry, 30 percent of the vegetables, 54 percent of the grapes and 22 percent of the potatoes and vegetables, of the overall procurement volumes for these products in the public sector, were accepted on the farms and transported by vehicles supplied by the procurement organizations.

A noticeable increase has taken place in recent years in the rates for converting over to this progressive form for purchases of livestock husbandry products. It is presently being employed by 42 percent of the farms for which plans were established for the sale of livestock and poultry to the state and by 32 percent of the farms engaged in procuring milk.

The conversion over to the acceptance of livestock products directly at the kolkhozes and sovkhozes and the transporting of them in vehicles supplied by the procurement organizations are being carried out most actively in the Lithuanian SSR. Here, in 1984, 65 percent of the livestock and poultry and 49 percent of the milk, compared to the overall volume of such procurements in the public sector, were accepted at the production sites, in the Belorussian SSR the figures were 65 and 39 respectively and in the Tajik SSR -- 47 and 50. This progressive formfor procurements is being introduced into operations at roughly the same rates in Belgorod Oblast, Stavropol Kray and in Ternopol, Ivano-Frankovsk and a number of other oblasts and republics.

Allow me to discuss in somewhat greater detail the experience in the Lithuanian SSR. The republic's agricultural organs ensured the preparation of delivery-acceptance points and the construction of hard surface access roads leading up to them on practically all of the farms. Special attention was given here to the weighing economy. And this was by no means an accident, since the Lithuanian SSR is the only one of the country's republics in which the acceptance of livestock is being carried out based upon live weight.

The enterprises of the processing industry displayed timely concern with regard to transport vehicles being made available for shipping the livestock. In 1983 and 1984, using the republic's agricultural funds, 477 livestock trucks and 440 milk tanker trucks were made available to the procurement organizations. Motor pools were created in all areas and the training of driver-receivers for the livestock was organized. The agricultural and procurement organs conducted seminars for specialists engaged in the delivery and acceptance of livestock husbandry products.

For the purpose of exercising control over the preparation of kolkhozes and sovkhozes and also procurement organizations for the delivery and acceptance of livestock at the production sites and also over shipments of the animals by specialized transport of the processing industry, inter-departmental committees were created consisting of representatives of rayon agricultural administrations, the meat and dairy industry, state inspectorates for purchases and the quality of agricultural products, the veterinary service and farms.

The republic ministries of agriculture, the meat and diary industry and procurements developed and approved a temporary statute on the conditions and order for accepting agricultural products directly at the kolkhozes and sovkhozes and on the centralized shipping of such products from farms in transport vehicles supplied by the procurement organizations. This document specifically defined the the order for introducing this progressive form for procurements into operations and the obligations of the direct executive agents -- kolkhozes, sovkhozes and procurement organizations -- when carrying out the delivery and acceptance of agricultural products at the production sites.

The weight of the livestock and their nutritional value, entered into the commodity-transport documents at the time of the delivery or acceptance at the kolkhozes and sovkhozes, serve as the basis for the subsequent formulation of the state receipt. Such a system for the delivery and acceptance of livestock made it possible to release farm representatives from having to accompnay the animals to the meat combines and it ensures strict observance of the schedules

for their deliveries and, it follows, more rhythmic operations by the meat combines. Today more than 70 percent of the animals are being slaughtered on the same day they arrive at the processing enterprises.

Thus livestock deliveries are being carried out at the present time at 1,017 farms (95 percent) having state plans for the sale of livestock and poultry. With the conversion of the republic's farms over to this form of procurements, the quality indicators for the animals sold improved considerably. Thus, in 1985 the average weight for a head of cattle delivered to the meat combines was in excess of 430 kilograms. Almost 95 percent of the young stock sold by the kolkhozes and sovkhozes were in a high state of nourishment and 56 percent of them were characterized by raised weight conditions.

Better use is now being made of specialized transport throughout the republic. Last year, each livestock truck transported approximately 1,500 tons of animals, or twice as much as was transported on the average by the country's motorized livestock carriers.

The introduction of this progressive form for procurements has had a beneficial effect on the economic indicators. In 1984 alone, for having sold young stock to the state in a raised weight condition, the republic's kolkhozes and sovkhozes were paid approximately 165 million rubles, or 65 million more rubles than in 1980, when the farms themselves transported the livestock for processing.

In the Ukrainian SSR, during 1984, 3,532,000 tons of milk, or 103.9 percent of the planned task, were accepted at the sites and shipped by means of transport vehicles supplied by industry; livestock and poultry -- 1,356,200 tons, thus exceeding the plan by 4.3 percent.

The conversion over to the centralized shipping of livestock and milk from farms in the Ukrainian SSR is producing considerable economic results and it is promoting the preservation of quality and a reduction in losses in the products. According to computations carried out at UNIIEOSKh imeni A.G. Shlikhter, the introduction of progressive forms for procurements during the current five-year plan alone has served to reduce the expenditures of agricultural enterprises in the UkSSR by 82 million rubles, with the national economy realizing a savings of 49.5 million rubles.

The cost for shipping milk and livestock on transport vehicles supplied by the Ukrmyasomoltrans Specialized Motor Transport Base is lower by a factor of 1.4-1.8 than that provided by farm transport.

In 1984 the Voroshilovgrad Production Association of the meat industry of the Ukrainian SSR shipped 42 percent of the overall volume of animals purchased, compared to 29.9 percent in 1980. The problems concerned with organizing centralized shipments here are being examined in a systematic manner during sessions of the presidium of the oblast council of the agroindustrial association. In conformity with a decision which it handed down, daily and hourly schedules for the delivery and acceptance of livestock at kolkhozes and sovkhozes were introduced into operations. Inventory committees are in operation in each rayon for the purpose of inspecting the farms and uncovering

the potential at each one of them for converting over to the progressive procurement forms and they also introduce recommendations for the practical implementation of these forms. Measures have been outlined for equipping the kolkhozes and sovkhozes with platforms for the loading and unloading of livestock, the weighing economy requirements have been defined and the schedules for the construction and repair of access roads established. All available specialized motor transport vehicles (38 livestock carriers) were turned over to the oblast association of Goskomselkhoztekhnika.

In Ternopol Oblast, milk is presently being accepted at the sites on 190 farms (57 percent) and livestock at 222 farms (60 percent). The milk acceptance points in this oblast are well supplied with laboratory equipment for determining the quality indicators of the milk, coolers, separators and milk containers. Hard surface access roads leading up to each delivery and acceptance point have been built.

The transport equipment for shipping the livestock are concentrated at selkhoztekhnika facilities -- 3-7 livestock carriers -- while the milk tanker trucks are subordinate to Ukrmyasomoltrans -- 14-16 milk tanker trucks to a rayon. The requests for livestock and milk shipments are drawn up by enterprises of the meat and dairy industry in conformity with delivery schedules established by the rayispolkom /rayon executive committee/ for the processing of these products. They also maintain the mutual accounts with the transport organizations.

The livestock and milk are accepted by drivers attached to specialized motor vehicle columns and thus they are made available for work only by agreement with enterprises of the meat and dairy industry and following specialized training. A leaflet has been developed for the driver-receivers which they are obligated to observe in the carrying out of their work.

The routes for the specialized motor transport vehicles are developed taking into account complete loading and the shortest distance between the base for the motor vehicle columns, the receiving and delivery points of the farms and the processing enterprises. The average shipping radius for livestock is 73 and that for milk is 29 kilometers.

Last year the cost for shipping 1 ton of livestock or poultry by motor transport vehicles of the procurement organizations in Ternopol Oblast was 2.21 rubles, or 19 percent lower than if use had been made of kolkhoz or sovkhoz transport. The national economic savings amounted to 158,200 rubles.

In addition to the carrying out of other organizational-administrative measures, this enabled the oblast's livestock breeders to increase the volumes of state purchases of milk and livestock and poultry by 8.1 and 2.4 percent in excess of the plan during 1984. In the process, 71,600 tons of livestock and 234,600 tons of milk, or 68.6 and 64 percent respectively of the overall volume of their purchases in the public sector, were accepted directly at kolkhozes and sovkhozes and shipped by transport vehicles of the procurement organizations. This was 61.3 and 56 percent higher than the average annual figures for the 10th Five-Year Plan.

The introduction of the progressive form for purchases of livestock husbandry products has had a positive effect with regard to improving the quality of these products. In 1984, 96.2 percent of the milk sold by the oblast's farms to the state was of 1st grade quality and 93.4 percent was refrigerated. The kolkhozes and sovkhozes were paid 11 million additional rubles for the sale of high quality milk.

Improvements in the quality of the livestock husbandry products sold to the state had a positive effect in that they raised the profitability of the meat of cattle from an annual average of 5.9 percent during the 10th Five-Year Plan to 13.3 percent in 1984 and in the case of milk -- from 2.4 to 29.2 percent respectively.

During 1984, in the Belorussian SSR, 65 percent of the livestock and poultry and 39 percent of the milk purchased in the public sector were delivered on a centralized basis to enterprises of the processing industry using transport provided by the special administration of Belmyasomolprom. The acceptance of milk and livestock at the sites and the shipping of these products by specialized transport of the procurement organizations in Grodno Oblast are being carried out in an organized manner. Here, in 1984, practically all of the kolkhozes and sovkhozes having plans for the sale of livestock to the state and more than two thirds of the farms -- milk sales plans -- converted over to this method for procurements. In Slonimskiy Rayon, almost 100 percent of the milk in the public sector is being accepted directly on the farms. The new system for milk purchases has made it possible to reduce expenditures per unit of output. More detailed information on this subject is furnished in Issue No. 8 of the magazine ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV for 1985, in the article by V. Chisheni entitled "What Does Centralized Shipping Provide?"

Almost all of the farms in Belgorod Oblast have converted over to the delivery and acceptance of milk at the production sites. This was preceded by a great amount of preparatory work. During the years of the 10th and 11th five-year plans, more than 800 kilometers of hard surface intra-farm roads were built throughout the oblast and 247 central creameries were either created or modernized. The overall expenditures for organizing centralized milk shipments amounted to 14.6 million rubles and they were repaid pracitcally within 2 years time (the operational experience of the Belgorod procurement specialists was discussed in detail in the magazine ZAKUPKI SELSKOKHOZYZYSTVENNYKH PRODUKTOV, in the articles by M. Mozgoviy "In the Spirit of the Times," in Issue No. 7 for 1982 and I. Krymkov "By Direct Contacts," in Issue No. 5 for 1985).

The modern forms for procurements are being introduced into operations on an extensive scale in connection with the sale of both livestock and plant husbandry products. In 1984 and compared to 1982, 52.8 percent more potatoes were accepted directly at the production sites, 18.9 percent more vegetables, 53.1 percent more fruit and berries and more grapes by a factor of 2.1.

The work of purchasing potatoes, with the products being accepted at the production sites, has been organized well in the Armenian SSR -- 84 percent, Kirghiz SSR -- 74, Kazakh SSR -- 71 and Lithuanian SSR -- 54; fruit and berries in the Georgian SSR -- 58; grapes in the Azerbaijan SSR -- 83 percent of the overall volume of purchases.

Many years of experience accumulated in Kharkov Oblast serve to underscore the effectiveness of this new form for procuring vegetables. Here the larger farms, those having higher levels of production concentration and specialization, have converted over to the use of direct contacts. Thus the Mayak Sovkhoz in Chuguyevskiy Rayon annually produces 20,000 tons of vegetables on an area of 760 hectares. The expenditures for the sale of a quintal of vegetables on the farm amount to 0.61 rubles and a standard portion of the output exceeds 87 percent and that for tomatoes and cucumbers -- more than 90 percent. Prior to the conversion over to direct contacts, all of these indicators were lower by a factor of 3-6.

Nevertheless, despite the obvious advantages of this most progressive form for procuring agricultural products, by no means is proper attention being given to its introduction into operations in all areas. For example, the proportion of milk accepted at the production sites and shipped by means of transport vehicles provided by the procurement organizations in the Uzbek SSR amounted to only 8 percent in 1984, Turkmen SSR -- 13 percent; livestock in the Turkmen SSR -- 5 percent, Kazakh SSR -- 15 and in the Uzbek SSR -- 16 percent.

The proportion of products being procured using this method still remains low in many oblasts of the RSFSR. Thus, in 1984 the acceptance of livestock at the sites and shipments carried out by transport vehicles supplied by the procurement organizations in Kirov Oblast amounted to only 0.7 percent, Omsk Oblast -- 1.4, Perm -- 1.7, Sverdlov -- 3.6, Kaluga -- 4.6 and in Tambov Oblast -- 4.8 percent. The acceptance of milk at the sites was carried out in a weak manner in Moscow Oblast -- 12.1, Gorkiy Oblast -- 12.8, Mari ASSR -- 13.1 and in the Bashkir ASSR -- 13.5 percent.

Experience has shown that many kolkhozes and sovkhozes possess the potential for expanding considerably the volumes of livestock products available for acceptance at the sites. However the enterprises of USSR Minmyasomolprom /Ministry of the Meat and Dairy Industry/ are not carrying out sufficient measures aimed at introducing this progressive form for purchases into operations, even in those instances where the kolkhozes and sovkhozes are fully prepared for such action. This situation has been observed in the Estonian SSR and in Moscow, Chelyabinsk and a number of other oblasts of the Russian Federation.

Quite often the procurement organizations utilize in an inefficient manner the transport equipment made available from the agricultural funds for shipping agricultural products from the production sites. Thus, in Lipetsk Oblast, in 1983, the Lipetskmyasomolprom Association was supplied with more than 140 specialized motor vehicles, three tractors, 67 trailers and other items of logistical equipment and with an appropriate number of drivers and engineering-technical workers and also wage funds. However, just as in the past, the acceptance of livestock husbandry products directly at kolkhozes and sovkhozes and the shipping of these products by transport provided by the procurement organizations are being held up, with references being made to various types of transport problems.

In a number of areas the procurement organizations are not undertaking proper measures aimed at expanding capabilities, especially for the processing of

livestock. This holds true for the Kazakh SSR, the Uzbek SSR and some oblasts of the Russian Federation. As a result, the average radius for the delivery of livestock to meat combines exceeds 100 kilometers in some instances and, as is known, this leads to losses in production output and naturally to large expenditures for transport operations. This also adversely affects the quality of the products.

Slightly more than 5 years remain prior to completing the conversion over to the delivery and acceptance of livestock and poultry, milk, potatoes, vegetables, fruit, berries and grapes directly at the kolkhozes and sovkhozes and to having these products transport from the farms in vehicles provided by the procurement organizations. The successful solving of this problem will depend upon joint efforts by the agricultural enterprises and the procurement organizations.

The chief role with regard to regulating production-economic relationships among those kolkhozes, sovkhozes and enterprises engaged in carrying out state purchases of agricultural products and also carrying out measures concerned with converting over to the acceptance of products directly on the farms and having them transported in vehicles supplied by the procurement organizations, as set forth in the Standard Statute on RAPO's /rayon agroindustrial association/, belongs to the new organs of administration -- rayon agroindustrial associations.

In view of the importance of the mentioned problem, the local agricultural organs, jointly with other interested organizations, should ideally analyze thoroughly the experience accumulated in this work and develop where necessary and carry out additional measures aimed at accelerating the conversion over to this most progressive form for procurements. All of this will serve to close the channels for losses in the products produced and hence improvements will be realized in the marketable quantities and quality of the products and in reducing production costs.

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AGRO-ECONOMICS AND ORGANIZATION

VASKHNIL CONFERENCE ANALYZES PROGRESS IN APK BRANCHES

Moscow SELSKAYA ZHIZN in Russian 29 Mar 86 p 3

/Article by I. Gorlanov and V. Shaykin: "High Obligations of Agroprom Scientists"/

/Text/ Annual meetings of scientists of branch departments and a general meeting of active members (academicians) and corresponding members of VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ took place on 25 and 26 March. The participants in these meetings discussed the operational results of the VASKhNIL scientific institutes during 1985 and the 11th Five-Year Plan on the whole and also the tasks for scientific support for developing the agroindustrial complex in light of the decisions handed down during the 27th CPSU Congress. A report was delivered by the president of VASKhNIL and deputy chairman of USSR Gosagroprom Academician A.A. Nikonov.

A chief consideration and one which distinguished this meeting from previous ones was the critical approach being employed with regard to the operational results of the scientific institutes and the sense of increased responsibility for the course of further studies and the use of their results in production and for carrying out the tasks of the country's Food Program. The speaker emphasized that an acceleration in APK development is a many-sided problem. It requires all-round solutions for many problems: biological, technical and technological, economic, social, organizational-administrative and moral-ethical. Thus we have in mind not just a simple improvement in operations, but rather a break-through into a new status for the APK /agro-industrial complex/ from the standpoint of quality. Scientific and engineering achievements are opening up basically new horizons for accelerating its development.

It was noted during the meeting that the agroprom scientists have many achievements in their arsenal. For example, during the years of the past five-year plan the plant breeders developed 707 new varieties and hybrids for grain and other crops, of which more than 300 have been regionalized. Much has also been accomplished in connection with the development of zonal farming systems, which are being mastered on an extensive scale at the present time. New models of equipment have been created and use is now being made of intensive technologies for the cultivation of grain and other crops. Last year they made it possible to obtain considerable additional quantities of grain and this year intensive technologies will be employed for cultivating grain crops on an area of 31 million hectares and in the future -- on approximately 60 million hectares.

However, many scientific institutes were unable to provide the farms with proper assistance.

With a sense of alarm, the scientists discussed the fact that land is continuing to be removed from economic use, the erosion processes have not been halted and the humus content in the soil is decreasing. The institutes of a farming profile have for a long period of time been carrying out work in connection with the development of soil-protective farming. However, many of their recommendations are disconnected and are not always completed or worked out in a systematic manner. Thus, anti-erosion cultivation of soil is employed mainly in the north Caucasus, northern Kazakhstan and in some regions of the Ukraine. And is there really no need for it in other regions, for example in the central chernozem or nonchernozem zones?

Serious complaints have been registered against the Department of Farming and Use of Chemical Processes and its subordinate institutes. In the Soil Institute imeni V.V. Dokuchayev, for example, only one work has been included in the union plan for introduction into operations over the past 5 years. Jointly with the State Institute of Land Resources, the institute dragged out the development of a land cadaster, for which there was a great need.

The vice-president of VASKhNIL, Academician A.N. Kashtanov, emphasized that the scientists bear complete responsibility, together with the production workers, for the status of affairs in farming: the required productivity and stability have not been achieved. At many kolkhozes and sovkhozes it does not have a resource-conserving or soil-protective character and thus soil erosion remains the chief scourge of farming, the main channel for losses in fertility resources and the cause of considerable shortfalls in crops. As a result, fertilizer, moisture and resources are being expended in vain.

"Over the past two decades" stated the scientist, "two concepts or two trends could be traced for the most part in our farming. One -- for the expanded reproduction of soil fertility as a decisive condition for stable agricultural development. It has produced great results on many farms in Belorussia, the RSFSR, the Ukraine and in the Baltic. The other concept -- reliance upon the utilization of high natural soil fertility, particularly in the chernozem zone. This parasitical or consumptive concept must be changed. It has not justified its existence and the better and more skilled leaders of farms in the TsChO /Central Black Earth Region/, the Volga area and the north Caucasus are beginning to abandon its use. The fertility of soil must be increased using all available means and all elements of the farming system. This will serve to guarantee the successful development of highly productive and stable farming."

The director of VNIIZKh /All-Union Scientific-Research Institute of Grain Farming/ imeni A.I. Barayev and Corresponding Member of VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ M.K. Suleymenov noted that the methods of soil-protective farming are being employed throughout the country on an area of more than 50 million hectares, with machines being created for this purpose. However, it is still too early to discuss the true development of anti-erosion systems. The institute's collective bears responsibility for the situation that has been created. Last year the farms in the north Caucasus had considerable quantities of fertilizer at their

disposal and a proper return from this fertilizer was realized only in those areas where the fields were tilled in a timely manner, windbreak row crops were cultivated, fertilizer was applied to the soil and so forth. Thus the problem of observance of technological discipline in all areas must be confronted.

All of the speakers underscored the degree to which plant breeding work has fallen behind the requirements of the times. For example, the Dnepr NPO /scientific production association/ for corn has not provided the corn growers with early ripening hybrids with a growing season of 90-95 days, the Krasnodar NIISKh /Scientific Research Institute of Agriculture/ and the All-Union Breeding-Genetics Institute -- varieties equivalent to the best foreign types in terms of their productivity. In particular, seed production is lagging behind. It is by no means an accident that even farms in Dnepropetrovsk and Odessa oblasts often submit requests for the importing of seed for foreign hybrids. The VNIIMK /All-Union Scientific Research Institute of Oil-Bearing Crops/ imeni V.S. Pustovoyt, the VNII /All-Union Scientific Research Institute/ of Pulse and Groat Crops, the VNII for the Potato Industry and other institutes are also falling behind in their work. The organization of technological centers, which is taking place in all areas, must raise the work to a new level.

The director of the All-Union Breeding and Genetics Institute L.K. Sechnyak noted that a considerable number of highly productive varieties of winter and spring wheat, barley, alfalfa and other crops have been bred in recent years and yet full use is not being made of their potential: the difference in yields on leading and other farms is at times twofold and threefold. And the reason for this is not limited to the agrotechnical level -- a scientifically sound varietal policy is not being observed. What will be the result of this?

"A constant campaign against so-called multiple varieties limits the selection of more suitable varieties at the kolkhozes and sovkhozes" stated the scientist, "On each farm there must be 2-3 and perhaps even 4 varieties which differ in terms of early ripeness and other characteristics. In the process, the possibility of economic maneuvering increases. For a correct varietal policy would make it possible at the present time to achieve stable yields at a higher level using existing varieties."

The creation of an international exchange gene fund has made it possible to utilize in breeding work the latest donors for all-round resistance against diseases and completely immune varieties have appeared, some of which are already undergoing state strain testing. Biotechnological work must be intensified and collaboration between the scientists of VASKhNIL and the USSR Academy of Sciences must be expanded.

The intensification of livestock husbandry operations also requires a substantial reorganization of operations and thorough integration of scientific studies with production practice. The lag in scientific research in the most promising areas has still not been overcome. In particular, work concerned with the development of specialized dairy and beef cattle husbandry and the transplanting of embryos is not being carried out on the proper scale and established tasks are not being fulfilled. Meanwhile, the leaders of the academy's livestock husbandry department and the All-Union Scientific Research Institute of Livestock Husbandry did not undertake timely measures aimed at concentrating the branch's forces and resources in the more important areas for development.

As noted by VASKhNIL academicians L.K. Ernst and K.U. Medeubekov and other speakers, the fundamental principle for the intensification of livestock husbandry is genetic improvements in all of the animals. Within our country there are many breeding centers for livestock husbandry, breeding farms and pedigree farms and yet only weak improvements are being realized in the animals. The method for transplanting embryos is still not being employed extensively. Beef cattle husbandry is developing only slowly. The All-Union Scientific Research Institute of Beef Cattle Husbandry and other institutes must change their operations radically and solve in a more active manner the problems concerned with the production of feed and improving the rations, especially with regard to protein.

Those who participa ted in the meeting also underscored the limited nature of the front of socio-economic studies and their weak effect on rural development. Many institutes in this sphere and particularly the All-Union Scientific Research Institute of Agricultural Economics are following events and offering explanations for them instead of foreseeing and forecasting development in the required direction, analyzing it and making recommendations for solving current and long-range problems. Special importance is being attached here to concentrating efforts on validating the measures aimed at raising the responsibility and independence of kolkhozes, sovkhozes and agroprom enterprises, in connection with their conversion over to cost accounting and self-repayment operations, in accordance with the development of a collective or in some instances a family or even an individual contract and the formation of a sense of management in all of the workers. It is also important to study more thoroughly the dynamics taking place in the socio-economic and demographic processes.

The use of scientific-technical achievements in the practice of all farms and APK /agroindustrial complex/ enterprises is a bottleneck in their operations. Yet the chairman of the Latvian Adazhi Kolkhoz A. Kauls and the director of the Ploskovskiy Sovkhoz in Brovarskiy Rayon in Kiev Oblast P.F. Volokha informed those participating in the meeting regarding the striking changes which take place on a farm as a result of the daily use of scientific-technical developments. They stated directly that we still lack a sufficiently effective binding element between science and production and that a conversion over to intensive technologies is not ensured by a system of machines, required fertilizers or others.

"We propose" stated A. Kauls, "by way of an experiment, that the best farms be tasked (and such farms are to be found in each rayon), jointly with the scientists, with mastering at least one intensive technology and developing it into an efficient production system."

During the VASKhNIL meeting, a speech was delivered by the 1st deputy chairman of the USSR Council of Ministers and chairman of USSR Gosagroprom V.S. Murakhovskiy.

In the decree adopted during the meeting, measures are outlined for providing all-round scientific support for the development of the branches of the agroindustrial complex and for accelerating scientific-technical progress in them.

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AGRO-ECONOMICS AND ORGANIZATION

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FACTORS AFFECTING PRODUCTION COSTS OF GRAIN, LIVESTOCK PRODUCTS

Sverdlovsk URALSKIYE NIVY in Russian No 1, Jan 86 pp 8-10

[Article by G. Demidov, head of the Depart of Political Economy at the Sverdlovsk Agricultural Institute, Docent, Candidate of Economic Sciences; and M. Zubairov, chief of the USSR Gosplan's Subsection for the Ural Economic Region: "Production Cost--an Important Indicator of Production Efficiency"]

[Text] The Food Program clearly defines two tasks facing the agricultural industry. The first requires the fulfillment of production plans to meet public needs for agricultural products, while the second involves enhancing its efficiency. The second task can be accomplished primarily by reducing production costs. This economic category reflects like a mirror the successes and deficiencies in the performance both of the farms and of those elements of the APK [agro-industrial complex] which are technologically linked to agricultural production.

We have tried to reveal the production cost dynamics for the main types of products on sovkhozes of the Urals and to determine trends in their development and the possibility of economic self-sufficiency for the farms at the existing price level. This task now depends more and more upon agriculture's conversion to the primarily intensive path of development, which under normal conditions results in a lowering of production costs.

The efficiency of agricultural production is based on the basic cost level for grain. Its dynamics during the first 4 years of the five-year plan on Ural sovkhozes were the following (Table 1).

The production cost of grain apparently has a tendency to increase. It is not a manifestly progressive trend, however. The production cost of grain dropped in most of the oblasts during the 10th Five-Year Plan in comparison with the previous one, for example, and increased once again during the 11th. The main cause of the drop in the production cost during the 10th Five-Year Plan was the increased yields. Take the sovkhozes of Kurgan Oblast as an example. Their grain yield was 12.4 quintals per hectare, and the production cost per quintal was 7.01 rubles during the 9th Five Year Plan, while the corresponding figures the 10th were 16.6 and 6.33. The yield was 13.3 quintals per hectare for the first 3 years of the 11th Five-Year Plan, and the production cost per quintal increased to 7.79 rubles. This indicator could remain at the level of the 10th Five-Year Plan only with a yield of 16.4 quintals per hectare, and when this

was exceeded the basic cost of the grain began to drop. Such was the dependency between yield and production cost not just in Kurgan Oblast, but in other Ural oblasts as well. The yield during the 11th Five-Year Plan was seriously influenced by climatic conditions, but there are more and more farms in each oblast which have learned how to counter them.

Table 1. Dynamics of Production Cost of One Quintal of Grain on Sovkhozes of the Ural Zone (rubles)

(1) Области и республики	(2) Годы			
	1966–1970	1971–1975	1976–1980	1981–1983
Курганская (3)	3,81	7,01	6,33	7,79
Оренбургская (4)	4,52	7,56	6,78	8,01
Пермская (5)	10,11	14,85	16,00	20,12
Свердловская (6)	6,08	9,27	10,00	13,63
Челябинская (7)	4,42	8,76	7,66	8,88
Удмуртия (8)	7,81	13,85	12,02	15,73
Башкирия (9)	3,99	6,90	6,46	8,30

Key:

1. Oblast or republic
2. Years
3. Kurgan
4. Orenburg
5. Perm
6. Sverdlovsk
7. Chelyabinsk
8. Udmurtiya
9. Bashkiriya

Increasing yields is the key problem of the Food Program. The state is allocating enormous funds for this purpose. The development of cropping systems and the performance of reclamation work are the most important directions for their application. Yields are still increasing slowly and are extremely unstable over the years, however. Sovkhozes in Kurgan Oblast harvested 16.2 quintals of grain per hectare in 1982, for exemple, and 11.9 the following year; in Orenburg Oblast the figures were 8.2 and 12.8 respectively; in Sverdlovsk Oblast 18.2 and 15.2; in Perm Oblast 11.0 and 12.9; in the Bashkir ASSR 11.9 and 17; and in Udmurtiya 11.8 and 13.6. Such fluctuations seriously affect the production cost of grain crops.

At first glance, differences in yield have almost no effect upon the production cost of grain (Table 2). Grain yields on Sverdlovsk Oblast sovkhozes were 12.4 quintals per hectare and the production cost for 1 quintal was 10.86 rubles in 1981, for example, while the yield was 18.2 quintals per hectare and the production cost 10.77 rubles the following year. A total of 23,491,000 rubles were subtracted from outlays for grain production in 1981 due to total or partial loss of crops, however. This is what made it possible to achieve the relatively low production cost of the grain. When all outlays are considered, the production cost for a quintal of grain was 16.20 rubles that year. In 1982 these outlays were written off in the amount of only 7,055,000 rubles, which actually increased the production cost of a quintal to 12.20 rubles. Such is the influence of the year's climatic conditions upon the production cost.

It is not just a matter of weather, however. There are other factors which affect the dynamics of grain production cost. We whall try to reveal them using the example of Sverdlovsk Oblast sovkhozes (Table 2).

Table 2. Dynamics of Basic Outlays in Production Cost of One Quintal of Grain on Sverdlovsk Oblast Sovkhozes (rubles)

(1) Виды затрат	(2) Годы			
	1971	1976	1981	1982
Зарплата (3)	1,32	1,65	2,04	1,80
Семена (4)	1,62	2,20	4,06	2,70
ГСМ (5)	0,34	0,32	0,48	0,36
Удобрения (6)	0,42	0,73	1,27	0,99
Амортизация (7)	0,77	0,91	2,03	1,46
Текущий ремонт (8)	0,78	0,74	1,55	1,06
Прочие прямые затраты (9)	0,61	0,58	2,60	1,81
Общехоз., общепроиз. расходы (10)	0,96	0,93	1,58	1,32
Себестоимость: (11)				
с вычетом стоимости недосбора продукции (12)	7,54	7,99	10,86	10,77
без вычета стоимости недосбора продукции (13)	—	—	16,20	12,20
Урожайность, ц/га (14)	12,5	17,9	12,4	18,2
Затраты труда, чел.-час. (15)	1,61	1,20	1,4	1,2

Key:

1. Type of outlay
2. Year
3. Wages
4. Seed
5. Fuels and lubricants
6. Fertilizer
7. Amortization
8. Maintenance
9. Other direct outlays
10. General management and general production costs
11. Production cost
12. Minus value of crop lost
13. Including value of crop lost
14. Yield, quintals per hectare
15. Labor expenditures, man-hours

We have taken for the comparison the years 1971 and 1981, 1976 and 1982, when grain yields were approximately the same, and in 1976 and 1982 even labor outlays per quintal were the same. The trend of increasing production costs can be seen, however, even when these basic factors affecting the size of outlays in the production cost are equal. There are outlays whose growth is natural. They result in increased yields and labor productivity: outlays for fertilizer, equipment, fuels and lubricants, and to some degree outlays for seed in the process of variety renewal. Take 1976 and 1982. There was no proportionate growth of yields when these outlays were increased. Outlays for fertilizer in the basic cost of the product increased by 36 percent, amortization by 60, fuels and lubricants by 13, and seed by 23 percent, while the yield increased by only 2 percent. This was due to an increase in the cost of mineral fertilizer and fuels and lubricants, as well as to an increase in the production cost of the seed. Labor costs increased as a result of an increase in wages, and amortization and maintenance outlays rose as a result of an increase in the quantity and the cost of the equipment. Other direct outlays for additional postharvest processing, storage and transportation of the product increased sharply.

How might outlays change in the years immediately ahead? The protion of the production cost accounted for by wages will not drop, since no significant growth of labor productivity is anticipated in grain farming. Increasing the power of the tractors and the combining of operations in the technological cycle which is possible with existing equipment will not produce a great deal. We should expect the branch to be reequipped in the '90s, when the development of fundamentally new equipment for the complete mechanization of intensive technologies for the production of high-yield varieties has been completed. Expenditures for seed will also increase--significantly, during the process of variety renewal. The new varieties will require mineral fertilizer not just during the planting period, but also as top dressing. More organic fertilizer will also be needed. Other outlays will also increase as a result of the increase in the quantity of expensive equipment in grain farming. The basic cost of grain crops begins to drop with a drastic increase in yields (to 26-28 quintals per hectare).

The production cost of livestock products has increased, particularly during the last 2 years of the five-year plan (Table 3). This is due to the fact that the growth in the productivity of the animals ceased. It even dropped in a number of Ural oblasts. Increasing the productivity of the animals under existing production conditions is the first requirement for overcoming this trend. We believe that there are certain possibilities for achieving this. By strengthening labor discipline and order on the farms the milk yield per cow was increased in 1983 over the previous year's level, for example: from 2,153 to 2,175 kilograms on sovkhozes in Orengurg Oblast; from 2,083 to 2,214 in Perm Oblast; from 2,356 to 2,577 in Sverdlovsk Oblast; from 2,221 to 2,471 in Udmurtiya; and from 2,270 to 2,362 kilograms in Bashkiriya. The growth in the production cost of milk could be halted by increasing productivity by at least 400-500 kilograms, but we have not yet managed to achieve this.

It is not just productivity which affects the basic cost of livestock products, however (Table 4).

The portion of the production cost of milk accounted for by wages continues to grow. This is caused by violations of the law of preferential growth for labor productivity rates over the growth of wages. Labor productivity on dairy farms on Sverdlovsk Oblast sovkhozes increased by 33 percent, while wages per man-hour grew by 248 percent. This resulted in an increase of 67 percent in wage outlays. It is difficult to find significant reserves for conserving funds on the basis of this indicator, since government documents call for further enhancing the material incentives of the livestock workers. These documents were not backed up locally with measures designed to achieve a higher level of labor productivity or for the technical reequipment of the branch, however.

Feed costs account for a particularly large specific portion of the production cost. They accounted for 43.2 percent of the production cost of milk in 1966, and 56 percent in 1983.

The increase in feed outlays per quintal of milk is also alarming: 131 feed units was required in 1966 (including 36 units of feed concentrates), while the figure had reached 171 feed units (56 units of feed concentrates) in 1983. This tells us that the quality of the feed does not measure up to livestock management requirements and that its preparation for feeding has not been established at the

proper level. We must therefore integrate feed production and animal husbandry, with payment based on the end result. The effectiveness of such a union would depend upon the development of technologies for conducting highly productive animal husbandry and feed production and for the complete mechanization of the branches, which will require time. The growth in feed outlays per unit of output can only be halted by making more efficient use of the feed and increasing technological discipline, however.

Table 3. Dynamics of Production Cost of One Quintal of Livestock Products on Sovkhozes in Ural Zone (rubles)

(1) Области и республики	(2) Годы			
	1966–1970	1971–1975	1976–1980	1981–1983
Молоко (3)				
Курганская (4)	16,04	21,51	26,77	30,89
Оренбургская (5)	16,69	20,71	27,03	30,69
Пермская (6)	20,37	26,45	33,90	44,54
Свердловская (7)	18,30	24,50	30,97	38,58
Челябинская (8)	17,39	22,79	28,23	32,07
Удмуртия (9)	17,87	23,75	27,67	34,84
Башкирия (10)	16,60	20,76	30,48	30,67
Привесы КРС (11)				
Курганская (4)	104	153	187	235
Оренбургская (5)	101	138	178	205
Пермская (6)	137	189	261	330
Свердловская (7)	127	176	236	287
Челябинская (8)	120	170	210	242
Удмуртия (9)	124	159	194	255
Башкирия (10)	107	147	174	210
Привесы свиней (12)				
Курганская (4)	91	131	194	233
Оренбургская (5)	101	155	226	207
Пермская (6)	135	187	248	290
Свердловская (7)	111	167	244	304
Челябинская (8)	121	172	215	213
Удмуртия (9)	131	158	182	223
Башкирия (10)	115	139	162	195

Key:

1. Oblast or republic
2. Years
3. Milk
4. Kurgan
5. Orenburg
6. Perm
7. Sverdlovsk
8. Chelyabinsk
9. Udmurtiya
10. Bashkiriya
11. Weight gains in cattle
12. Weight gains in hogs

Expenditures for amortization and maintenance have increased almost fourfold due to the use of more expensive equipment and the construction of new farms with a considerable increase in the cost per animal (Table 4). This trend will continue. The growth of outlays can be halted by industrializing agricultural construction and reducing the price of equipment for the livestock farms, which depends mainly upon the APK branches providing the means of production and servicing agriculture.

Table 4. Dynamics of Basic Outlays in Production Cost per Quintal of Milk on Sverdlovsk Oblast Sovkhozes (rubles)

(1) Виды затрат	(2) Годы				
	1966	1971	1976	1981	1983
Зарплата (3)	5,32	5,83	7,13	7,52	8,91
Корма (4)	7,08	11,89	15,10	20,65	23,30
Амортизация (5)	0,63	0,94	1,80	2,78	2,48
Текущий ремонт (6)	0,52	0,83	1,07	1,89	1,83
Проч. основн. затраты (7)	1,59	2,36	3,07	4,36	4,33
Общепроизв. и общехоз. расходы (8)	2,14	2,53	2,97	3,57	4,24
Себестоимость 1 ц (9)	16,40	21,17	28,56	37,05	41,71
Удой на корову, кг (10)	2568	2433	2307	2085	2579
Затраты труда, чел.-час. (11)	9,2	9,1	7,6	7,4	6,2

Key:

1. Type of outlay
2. Year
3. Wages
4. Feed
5. Amortization
6. Maintenance
7. Other basic costs
8. General production and general management costs
9. Production cost per quintal
10. Yield per cow (kilograms)
11. Labor outlays (man-hours)

Other direct outlays and administrative costs are also growing. This is caused by the increase in outlays for maintaining transportation, roads, the electric power supply, water management facilities, heating systems, equipment for summer camps, and many other things. The servicing elements of the rayon agroindustrial complex must play a large role in the reduction of these outlays.

An analysis shows that the basic cost of grain, milk and meat will tend to increase. The forecast may not come true if grain crop yields are increased by 30-40 percent under the 12th Five-Year Plan. Such an increase in yields is possible on individual farms with efficiently organized production. Conditions need to be created in the region as a whole and in the oblasts for adopting the intensive, highly mechanized technology for raising grain and feed crops. Take Sverdlovsk Oblast farms as an example. The grain crop yield on the sovkhozes averaged 17.2 quintals per hectare in 1984, and the production cost of a quintal was 14.29 rubles. The figures were 21.6 quintals per hectare and 10.87 rubles respectively in Talitskiy Rayon; 21.4 and 11.67 in Kamenskiy Rayon; and 23.8 quintals per hectare and 12.39 rubles in Sysertskiy Rayon. The grain yield was increased from 25 to 28 quintals per hectare in 1984 from the previous year on the Krasnogvardeysk Poultry Sovkhoz, and the production cost per quintal dropped from 14.62 to 14.15 rubles.

A more complicated situation is developing in the branches producing milk, beef and pork. They need a fundamental reorganization of feed production, the processing of the feed, the feeding process and the conditions for maintaining the livestock, and a switch to industrial technology for maintaining a highly productive herd. Unfortunately, it will be difficult to introduce such technology

in the near future. And this will lead to a further increase in the production costs of livestock products. In order to preserve the economic incentives for the farms, it is planned to increase procurement prices. A great deal needs to be done right now to reduce the production costs, however. First of all, we must work out and approve the technological planning documents, make them binding upon the farms and teach the livestock workers how to work effectively. Poultry farms with cattle are an example of this. While they lag behind the dairy farms with respect to labor productivity due to the size of their livestock farms, they are ahead with respect to feeding technology. Here are some typical data: 153 feed units were expended per quintal milk on the dairy farms, but only 115 on the poultry sovkhozes, while the production cost was 44.75 and 31.32 rubles respectively, and the milk yield per cow was 2,500 and 4,396 kilograms respectively. Such is the effect from the adoption of modern feeding technology.

Is there any possibility of reducing production costs within a short period of time? This question can be answered in the affirmative. The accelerated resolution of this problem involves, on the one hand, meeting the needs of the sovkhozes and kolkhozes for equipment for adopting modern technology and greatly increasing labor productivity, and on the other, improving the management system (planning, the structure and organization of management, economic self-sufficiency, the material incentive system, the brigade contract, and competition). The technical reequipment of the farms is the main element, and the branches of industry servicing the needs of the APK must assist with this. Let us hope that their assistance to agriculture will become more effective in the future.

11499
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AGRO-ECONOMICS AND ORGANIZATION

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GRAIN PRODUCTS MINISTER ON MIXED FEED TRANSPORT PROBLEMS

Moscow MUKOMOLNO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST in Russian No 3, Mar 86 pp 1-5

[Article by M. Timoshishin, USSR deputy grain products minister: "Increasing Centralized Mixed Feed Deliveries"]

[Text] The Soviet people are looking forward to the upcoming 27th CPSU Congress with great enthusiasm. Workers in all branches of industry and agriculture are working with still greater vigor and firm determination to implement the party's plans.

Every day the competition develops more broadly among the country's grain growers to significantly augment production and sales to the state of products from livestock farms. The workers in this branch are seeking untapped potential for intensifying that production and for increasing in every way the productivity of kolkhoz and sovkhoz herds so as to obtain more meat, milk, and eggs from the same number of livestock and poultry and to achieve optimum inputs of feed, labor, and resources.

The course which has been adopted toward intensification of animal husbandry imposes higher requirements on all the partners of the agroindustrial complex and related branches. To be specific, great responsibility falls upon the state mixed feed industry and the collectives of mixed feed enterprises, which are expected to produce mixed feeds and high-quality protein and vitamin additives for livestock-raising complexes and industrial-type poultry farms.

The task of punctual and regular delivery of the mixed feeds and protein and vitamin additives produced from the mixed feed enterprises to the farms is an equally important and crucial one under the present conditions in the conduct of animal husbandry. One can easily imagine the consequences of failing for even 1 day to punctually produce and deliver mixed feeds for a livestock-raising complex scaled at 54,000, 108,000, or 216,000 head of swine or industrial-type farms with 3-6 million broilers or 400,000-600,000 laying hens. Any deviations, be they ever so slight, in the regime for feeding the animals and poultry, as experience has confirmed, cause stress states that mean a drop in productivity for the better part of a month, and they may result in loss of the animals.

That is why the smooth and highly efficient operation of the livestock-raising branch and fulfillment of the targets of the country's Food Program for the production of meat, milk, and eggs cannot be guaranteed without comprehensive and interlinked operation of the suppliers of raw materials, the mixed feed enterprises, the consumers of the mixed feeds, and transport organizations.

The workers of mixed feed enterprises share responsibility for delivery of mixed feeds to consumers with the transportation workers: the truckers, the railroadmen, the riverboatmen, and also with the personnel of the farms and agroindustrial associations themselves. At the same time, there are still hitches in the present system of transportation links between mixed feed enterprises and mixed feed consumers, so that livestock-raising complexes do not always have a guaranteed supply of mixed feeds, and the mixed feed industry does not always operate smoothly. For instance, in 1984 the tardy delivery of railroad cars and motor transport caused a total of more than 11,000 hours of downtime of mixed feed enterprises over and above the standard allowance. This is equivalent to idling for an entire year a mixed feed plant with an output of 460 tons per day. But the main result of that downtime is that 138,000 tons of mixed feed were not delivered on time to livestock farms, and this affected their performance adversely.

The location of mixed feed enterprises relative to the consumers of their products varies. There are farms which are right next to the mixed feed enterprises; these are mainly very large livestock-raising complexes, and there are consumers which are hundreds and thousands of kilometers from mixed feed enterprises. Mixed feeds are accordingly delivered by that branch of transportation which is the most economical under the particular conditions. Yet most of the output (more than 60 percent) of mxied feed enterprises is carried by truck. This indicates that most mixed feed enterprises have already been brought closer to consumers.

Without detracting from the role and importance of rail transport, we should note that the delivery of mixed feeds and protein-vitamin supplements to consumers by truck does have advantages, since in this case the products are delivered directly to the farms and even to the livestock-raising operations, that is, to the places where they are consumed. This eliminates excessive transshipment, spillage and loss, it sharply reduces the amount of loading and unloading, it reduces the likelihood that the ingredients of the mixed feeds will separate so that their quality deteriorates, it makes deliveries more uniform and regular, it affords the possibility of delivering different mixed feeds on a single trip if specialized grain trucks are used with two or three separate compartments, so that the different products do not mix. In addition, as the experience of certain farms as well as foreign experience have shown, the delivery of mixed feeds by truck can easily be managed by traffic control.

Over the period 1981-1984 more than 110,000 railroad cars were made available by switching deliveries of mixed feeds from rail to truck for consumers located at distances under 100 km. And if the rail shipments that do occur were eliminated, another 100,000 cars so extremely necessary to the economy could be made available.

All of these factors are being taken into account in planning the development of the material and technical base of the mixed feed industry, in the location of mixed feed enterprises being built, and in the reconstruction and retooling of existing ones.

In ESSR over the past year all mixed feeds and protein-vitamin supplements were delivered by truck from enterprises to farms; in LiSSR the figure was 94.3 percent of total shipments, in KiSSR 88.7 percent, in LaSSR 83 percent, in TaSSR 78 percent, in BSSR 76 percent, and in GSSR 70 percent.

The share of truck shipments of mixed feeds is comparatively low in RSFSR at 59 percent, in KaSSR at 57 percent, and in UkSSR at 44 percent. This can be explained to some extent by the fact that in certain oblasts and krays of those republics adequate capacities of mixed feed enterprises have not yet been built and also by the specific nature of those republics: the shipment of the products northward, large distances between producers and consumers, the lack of highways, and so on. But at the same time all opportunities have not yet been exhausted even there for increasing the efficiency of shipments of the products of mixed feed enterprises.

The task, in accordance with the decree of the CPSU Central Committee and USSR Council of Ministers (1983) on increasing the efficiency of motor transport facilities in the economy, is to organize these shipments mainly on a centralized basis and to bring up their proportion to 70 percent by 1990.

An analysis of the status of truck deliveries of mixed feeds and protein-vitamin supplements to livestock-raising complexes and industrial-type poultry farms shows that there are still many unresolved aspects to this problem, since this type of shipment is being developed through a variety of organizational forms not all of which are economical.

At the present time the products of mixed feed enterprises are being trucked with the trucks of the farms themselves, which can be called the "pickup" method, or by the centralized method--by specialized feed trucks and trucks adapted for these purposes of the former Goskomsel'khoztekhnika and republic motor transport ministries.

Experience shows that the delivery of mixed feeds and protein-vitamin supplements with the vehicles of the consumer farms has a number of organizational and economic shortcomings and on the whole, viewed from the standpoint of the national economy, is less profitable than centralized delivery with the specialized vehicles of trucking enterprises.

Centralized delivery of mixed feeds in specialized vehicles makes it possible to considerably reduce these deficiencies thanks to punctual and step-by-step (set down in a schedule) delivery of the vehicles to the mixed feed enterprises. This way of organizing shipments reduces the downtime of enterprises, sharply reduces the need for vehicles, guarantees preservation of the quantity and quality of the mixed feeds and protein-vitamin supplements, affords the possibility of centralized management of the operation of the trucks, of improved planning, and of responsive management, recordkeeping, and monitoring;

the cost of truck delivery of mixed feeds is also reduced, and the pool of vehicles is smaller.

The favorable experience gained in ESSR, LiSSR, and BSSR provides confirmation of this. This operation has been well organized on certain farms of Stavropol Kray and Kharkov, Grodno, and Moscow Oblasts.

At the same time centralized delivery of mixed feeds in specialized (or adapted) vehicles in accordance with schedules mutually agreed to has still not become widespread. These matters have been dealt with especially unsatisfactorily in certain krays and oblasts of RSFSR, UkSSR, UzSSR, KaSSR, AzSSR, ArSSR, and TuSSR. Nor is the centralized delivery of mixed feeds being done in a sufficient volume in the other republics either.

A study of this matter shows that there are several reasons for this situation.

Underestimation of This Important National Economic Problem. At present not a single department is being assigned targets for centralized delivery of mixed feeds and protein-vitamin supplements. There is no recordkeeping or reporting concerning the amount of mixed feeds and protein-vitamin supplements delivered on a centralized basis to consumers or on the economic efficiency achieved. No moral or material incentives have been established for the introduction of this progressive form of shipment.

Only in certain republics, krays, oblasts, and rayons has this matter been taken under consideration and observation by policymaking bodies, commissions of the agroindustrial combines, RAPO's, and local agricultural and procurement entities, and trucking organizations.

Insufficient Number of ZSK-10 and ASP-25 Feed Trucks in Trucking Enterprises. The feed trucks being manufactured by industry are mainly distributed to kolkhozes, sovkhozes, and poultry-raising and livestock-raising complexes, while only a negligible portion of them are being sent to trucking enterprises.

For their part trucking enterprises are not rushing to put in orders for the grain trucks, since for a number of reasons (the consumers' lack of access roads, scales, and storage facilities) they are not always able to use them efficiently.

Yet calculations show that the total number of grain trucks (approximately 10,000) delivered in just 2 years, had they been committed to centralized delivery, would have made it possible to deliver in excess of 36 million tons of mixed feeds more to the farms per year; this is the amount that is now delivered by all types of motor transport. At the same time the saving thanks to the reduction in the number of trucks needed could have amounted to about 24 million rubles for the country as a whole.

Great Distance of Trucking Enterprises From Mixed Feed Plants, which considerably increases the distance the trucks travel empty. For example, mixed feeds are carried from the Bolshevo Mixed Feed Plant in Moscow Oblast by feed trucks

of trucking enterprises located at a distance between 50 and 100 km from the plant--in Zagorsk, Zvenigorod, Istra, Solnechnogorsk, Ivanteyevka, Klin, and so on. This reduces the efficiency with which vehicles are used and makes it more difficult to coordinate their operation. Other enterprises provide similar examples.

Lack of Access Roads and Scales on the Farms Consuming Mixed Feeds and the Necessary Plant and Equipment at Certain Mixed Feed Enterprises. Weighing the ASP-25 feed trucks requires 30-ton truck scales with an extra-long platform or a 60-ton truck scale, and the mechanized unloading of the mixed feeds and protein-vitamin supplements on the kolkhozes and sovkhzes and other farms requires the appropriate equipment and storage facilities.

We might also note certain deficiencies in the design of the ASP-25 feed trucks. For example, the present configuration of the body with mixed feeds and protein-vitamin supplements, which have low density (higher than 10 percent bran, cottonseed meal, and so on), tends to encourage its caking, its loss of bulk, and this creates difficulties in unloading and increases the idle time of the trucks. The fastening of the covers of the upper loading hatches of the feed trucks does not guarantee that they are fixed tightly in place, so that access to the mixed feed is possible even without breaking the seal. In addition, the granules of mixed feeds are largely destroyed in the unloading devices.

Present Practice of Breaking Down Mixed Feed Allocations by Farms. As a rule local planning and agricultural authorities submit the distribution of allocations for mixed feeds and protein-vitamin supplements not 30 days in advance of the planning period, as envisaged by the special conditions for delivery, but 15-20 days after the planning period has begun. This makes it more complicated to plan shipments of mixed feeds and protein-vitamin supplements strictly according to schedule and so as to perform contract obligations. In addition, at industrial-type poultry farms and large livestock-raising complexes the technology absolutely requires no less than a 2-week revolving stock of mixed feeds in the necessary assortment. But most farms lack these stocks, which causes difficulties in achieving regularity in the production and delivery of mixed feeds.

Failure of Trucking Enterprises To Meet Contractual Obligations. As for trucking enterprises, they still are not holding strictly to schedules for delivery of mixed feeds, and they are not bearing responsibility for that on an equal footing with mixed feed plants. For instance, on the average the ratio of trucks in service to the size of the fleet for trucks of the former Goskomsel'khoztekhnika carrying mixed feeds and protein-vitamin supplements from enterprises of Moscow Oblast is 0.7, in ESSR (trucks of the Motor Transport Ministry) it is 0.8, and in LiSSR it is 0.85.

In view of this the large livestock- and poultry-raising farms prefer to have their own trucks. For instance, the Petelinskaya Industrial-Type Poultry Farm in Moscow Oblast has five grain trucks of its own for this purpose; they carry 20 percent of the mixed feeds, while the other 80 percent is carried by centralized delivery. At the Bronnitsy Poultry Farm they have 12 feed trucks

which carry about 2,000 tons of mixed feed per month from the Ramenskiy Grain Products Combine.

In MSSR the large farms have their own motor vehicle depots out of which they feed trucks are operated. For instance, the "Progress" NPO for the production of pork has 144 and Moldptitseprom 250 feed trucks.

Imperfect Operation of the System of Settlement for Shipment. Shipping costs are paid per ton-kilometer. This is why it is disadvantageous for drivers and trucking enterprises to carry mixed feed and protein-vitamin supplements on hauls shorter than 20 km. As a consequence the trucking enterprises use various dodges to avoid loads.

Thus the universal introduction of centralized delivery of mixed feeds in specialized trucks strictly in accordance with established schedules is a general problem whose solution depends on many departments. When the volume of centralized delivery of mixed feeds over the period 1986-1990 was determined, consideration was given to this problem's great importance to the economy as well as to economic efficiency.

When the volume of centralized delivery of mixed feeds and protein-vitamin supplements was being determined and cleared, first consideration was given to the existence of specialized and adapted vehicles, to the status and prospects for development of plant and equipment (access roads, storage facilities, scales, receiving and shipping facilities, etc.) of kolkhozes, sovkhozes, and other farms consuming these products and of mixed feed enterprises and trucking enterprises.

Trucking enterprises were also designated for each republic that would do this hauling, the need for specialized vehicles was arrived at, the specialization of mixed feed enterprises was determined in detail, and they were assigned to specific farms consuming mixed feeds and protein-vitamin supplements, and a number of other measures were outlined to solve this problem.

In the first stage plans call for expanding centralized delivery of mixed feeds and protein-vitamin supplements to large farms, sovkhozes, specialized poultry, livestock, rabbit, fish, and other farms where the required conditions already exist or will be created in the next few years for unloading and for weighing the specialized and adapted trucks.

Coordinated and efficient operation of all interested departments will afford the possibility of solving an important problem to the national economy--punctual delivery of mixed feeds to consumers, and at the same time it will increase the operating efficiency of a number of branches of the economy.

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TILLING AND CROPPING TECHNOLOGY

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INTENSIVE CROPPING TECHNOLOGY FOR NON-CHERNOZEM ZONE DESCRIBED

Moscow TEKHNIKA V SELSKOM KHOZYAYSTVE in Russian No 8, Aug 85 pp 7-10

[Article by V. N. Drozdov, candidate of agricultural sciences, NIISKh [Scientific Research Institute for Agriculture] TsRNZ [of the Central Region of the Non-chernozem Zone] and Yu. I. Kuznetsov, candidate of agricultural sciences VIM [All Union Scientific Research Institute for the Mechanization of Agriculture]: "Intensive Technology for Growing Winter Wheat in the Non-chernozem Zone"]

[Text] One of the conditions for increasing grain production is the introduction of progressive technology for raising grain crops.

Intensive technology for raising winter wheat has undergone widespread production testing and has given good results. Thus, many farms in Moscow Oblast (GPZ [Possibly: State breeding zavod] Zarya kommunizma, the Runovskiy and Voskresenskiy and other sovkhozes) used this technology in 1984 to raise 5.0-6.5 tons of high quality grain per hectare. This technology's features include: balanced nutrition and a set of plant protection measures. In the autumn it is necessary to make 2 treatments against pests and in the spring and summer 4-5. In addition, there are 1-2 applications of retardants and triple nitrogen [triazotny] fertilizer. Compared to traditional technology, the intensive variant calls for 6-7 additional passes of tractors and machinery over the fields. Therefore, to prevent soil compaction and to complete all work to meet high quality standards, it is essential that equipment have the same wheel spacing.

Practical experience at kolkhozes and sovkhozes in Moscow and other oblasts shows that outlays per hectare using such technology increase by 350-460 rubles. However, they are repaid one hundred fold by yields. Intensive technology guarantees 35-40 percent increases in winter grain harvests. These gains can be even greater on sections with improved soil fertility. However, this requires a good knowledge of the new technology's features.

In 1984 the new technology was used to grow winter grains on more than 100,000 hectares in the RSFSR's Non-chernozem Zone. However, checks have shown that in a number of places the results were unsatisfactory and many farms allowed gross violations in crop location, there was low quality soil tillage, etc. All this had a negative effect upon yields. Intensive technology cannot be applied without taking into account the features of the zone and even each

individual field. Soil and weather conditions must be included. One cannot give identical recommendations for the entire RSFSR Non-chernozem Zone. However, the practical experience of progressive farms permits a number of general requirements which must be observed.

Above all, the winter crop area must be on sections with higher fertility. Acidity should be from pH 5.5 to 7, and phosphorus and potassium content at least 10 mg per 100 grams of soil.

Winter crops should follow predecessors which best retain moisture. Of course, clean fallow is best in an agronomic sense. However, high yields are obtained from winter crops following other fallows (vetch-oats and pea-oats mixtures, first year clover, second year perennial grasses). High yields are also obtained after row crops, but large doses of organic fertilizer must be applied.

It is necessary to properly select predecessors. Harvest times are very important for intensive technology. Early harvests of predecessors make it possible to accumulate moisture and to perform proper and timely tillage. The new technology is based upon systematic improvements in soil fertility through the application of high doses of organic fertilizer, liming and phosphate rock applications and the rational use of mineral fertilizers. Practice shows that only the combined application of organic and mineral fertilizers makes it possible to obtain high yields of winter crops.

Each hectare receives 20-40 tons of organic fertilizers. The "Agrochemical and Plant Protection Field Description" is the initial information for calculating mineral fertilizer application norms. The results of tests for phosphorus and potassium and plant requirements for these nutrients are used to calculate fertilizer dosages. To obtain 6-7 ton per hectare yields of winter grain crops in Moscow Oblast, phosphorus applications average 100 kg and potassium applications 200kg per hectare (active ingredients). A large share of the phosphorus fertilizer, with the exception of granulated superphosphate, and all the potassium fertilizer are applied during the main tillage operations.

Winter crop yields depend to a great extent upon nitrogen supply, especially in the critical periods of plants' requirements for this element. Multiple applications of nitrogen are therefore required. Nitrogen applications average 150-180 kg of active ingredients per hectare.

There must be a differentiated approach to the times and doses of nitrogen fertilizers. If soil diagnosis in the autumn shows that nitrogen reserves are insufficient, then 20 percent of nitrogen needs are applied in the preplanting dosage. These dosages are even higher if the root layer is saturated with moisture. If too much nitrogen is applied to dry soil prior to planting, then considerable amounts might be washed out from the root layer. In Moscow Oblast 40-60 kg of nitrogen are applied prior to planting. This is sufficient for plants' normal development. During the autumn tillering period, side shoots are formed, spikes develop, determining the number of spikelets and grains on them. Insufficient nitrogen during this period can negatively influence plant productivity and winter hardiness. At a number of farms where large doses of organic fertilizer are applied and where grains follow clover and clean

fallow, nitrogen is not applied in the autumn, but during top dressing in the spring and summer. Nitrogen fertilizer should be applied separately, not mixed with phosphorus and potassium.

The required agricultural equipment is selected on the basis of the area of winter crops, the amount of organic and mineral fertilizers applied, the retardants, herbicides and other agents used. The sweep of planting and treatment units should be equivalent, or multiples of one another. All crop machinery should have equivalent wheel spacing.

All operations are performed in strict accordance with technological charts.

Timely and high quality tillage is important. It should begin no later than three days prior to planting. The main tillage method depends upon the predecessor, the character and degree of weed infestation, weather and other factors. For moldboard tillage, use is made of combined plow units consisting of 7, 8, and 9 bottom plows with PVR-3.5 attachments or PLP-6-35 plows with PVR-2.3 attachments. The PVR-3.5 attachment must be properly hitched to the plow (Figures 1,2). If there are no such attachments, rollers with harrows are hitched to the plows. Frequently combined plowing units are used, consisting of a PN-4-35 plow and a roller-planer, made from a ZKK-6A or ZKKSh-6 roller (Figure 3).

Following row crops, a number of farms plow to 12-14 cm, using PPL-5-25 or PPL-10-25 share scufflers. On well tilled soils in the Non-chernozem Zone many farms replace plowing with less energy intensive surface tilling by BDT-3A or BDT-7.0 disk harrows. This is especially effective when the soil has dried out prior to tillage. Special attention is given to tool points. The disk bevel should be 12-15 mm, and the cutting edge 0.3-0.5 mm thick. After tillage with a disk harrow, the soil is cultivated to the depth of disking in order to make a level seed bed.

Level soil with a low degree of compaction is essential for the successful application of plant protection chemicals, as their efficiency drops markedly on cloddy, uneven soil. The combined use of RVK-3.6 and RVK-5.4 machines results in the best quality preplanting soil preparation. It is better to use the VIP-5.6 for surface tillage with heavy disk harrows. During operation these units should be controlled by a leveler and properly regulated. The leveler is installed at the height of the suspension levers to that it is tilted backwards 20-30 degrees. The units are at a 40-45 degree angle and overlap 15-20 degrees.

Dyna-Drive (England) rotary tillers are frequently used for preplanting processing (Figure 4). They are good at breaking up the soil after plowing. The surface layer is broken up by two revolving rotors, the rear one rotating 2.5 to 3 fold faster than the front one. This assures a high quality job of breaking up the soil. However, the surface level is insufficiently level and sometimes the upper level is broken up excessively. It is therefore advisable to use a VIP-5.6 or a roller.

Figure 1. Scheme for Hooking up PVR-3.5 Attachment.

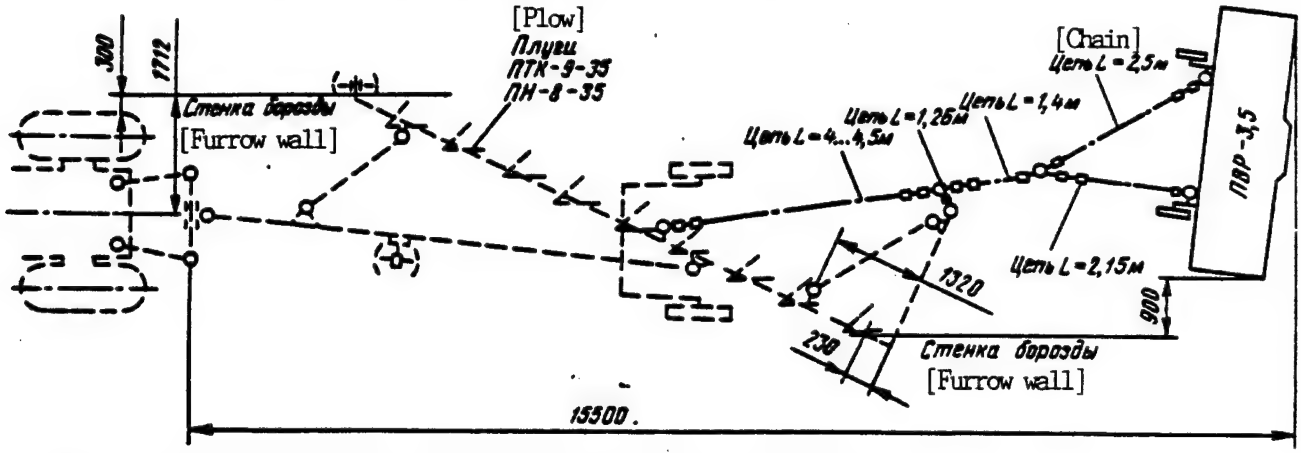


Figure 2. Scheme for Hooking PRV-2.3 Attachment to Plow.

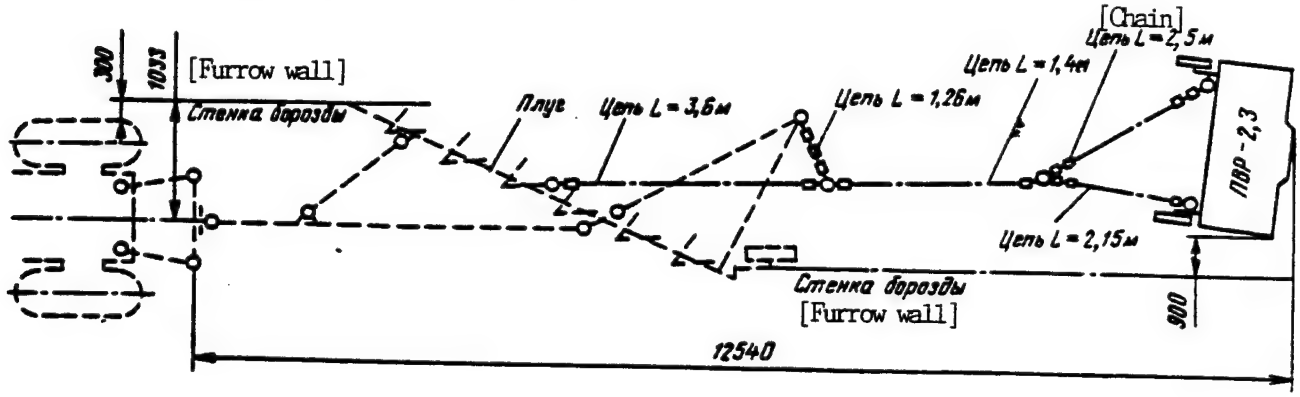
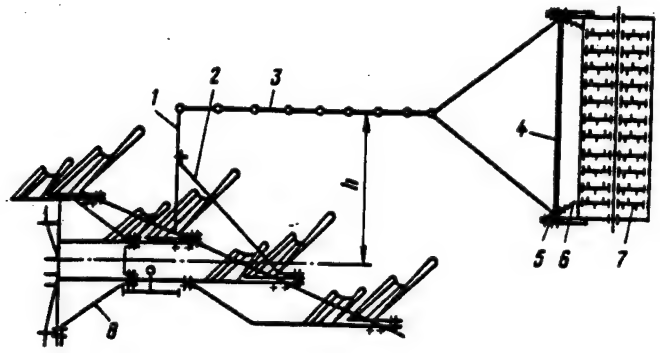


Figure 3. Combined Plowing Unit.



[Key]
1. Bracket
2. Strut
3. Cable
4. Levelling connector rod
5. Bracket
6. Spring
7. ZKK-6A ring-cleat roller
8. PN-4-35 plow

The preplanting preparation should result in level soil, in which the worked level has at least 80 percent (by mass) 1-5 cm clods. There should be no clods larger than 10 cm.

Planting is within strictly set times and done to meet high quality standards. In order to obtain hearty, even germination, only large, sorted seeds should be planted. Prior to planting they are dried to 14 percent moisture and sprayed with fundazol or other effective agents. The same wheel spacing is used during planting. Its width is selected depending upon machinery available at the farm (applicators, sprayers). The 1RMG-4 and RUM-5 spreaders and the sprayer model OPSh-1 should have 1,400 mm wheel spacing, with two non-sown bands 450 mm wide each. The OPSh-15 sprayer's wheels should be expanded to 1,800 mm.

If there are boom spreaders and foreign brand sprayers the wheel spacing should still remain at 1,400 mm.

On large fields, DT-75 and T-74 crawler tractors are used with three SZ-3.6 and SZU-3.6 grain drills (Figure 5). In order to leave an unsown strip, when the wheel spacing is set at 1,800 mm, the No 6, 7, 18 and 19 feed meters are blocked off. For this purpose metal covers are installed inside the feed box above the feed rollers. The 8th, 9th, 16th and 17th openers are right behind the tractor. Tracking devices (burster points, harrow teeth, and others) are installed on the tractor hitch or beam) to set the seeds at the necessary depth. The tension is increased on the suspension springs for these openers.

Single planting units pulled by Belarus tractors are used on small fields. Tractor wheel spacing is set at the required width (1,400 or 1,800 mm). The feed meters right behind the tractor wheels are blocked off (Figure 6). Planting is by the group method, with three tractors. They are equipped with tracking indicators. The first and third do not leave the wheel tracks, while the second does. The wheel spacing remains at 10,8 meters for three drill and one drill units.

In order to improve soil preparation and to more carefully level the soil surface, the SZ-3.6 and SZU-3.6 drills are frequently hitched to RVK-3.6 units. (Figure 7).

The Akkord (Federal Republic of Germany), with a 7 m sweep, is hitched up to MTZ-82 tractors. Additional counterweights (up to 200 kg) are attached to the front end of the tractor for this. These drills have a 12.5 cm interrow space. It is recommended to use two units. If they are used together with domestic machinery, the wheel spacing remains at 1,800, while if imported machinery is used then it is 1,400 mm. The three openers behind the tractor wheels are blocked off on one drill (a special stopper is installed). One unit operates without leaving the ruts, while the second leaves an unsown strip 500 mm wide.

When using the Akkord, there is a wheel track every 12 meters. The operating wheel spacing makes it possible to carry out all cultivation and application processes at any time during the vegetative growth period without damaging plants. However, it is essential to strictly observe the working sweep, that is, to work without overlaps or gaps.

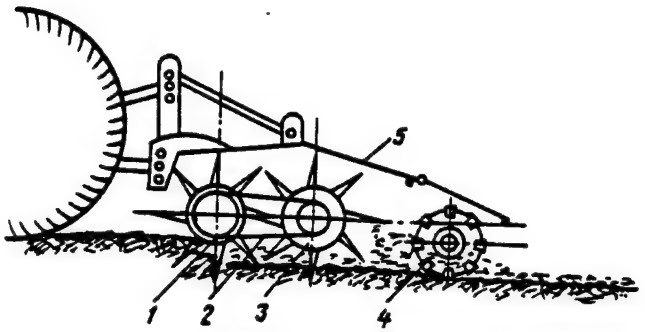


Figure 4. Schematic Drawing of "Dyna-Drive" Rotary Tiller
[Key] 1. Front rotor 3. Rear Rotor 5. Protective cover
2. Drive 4. Spike roller

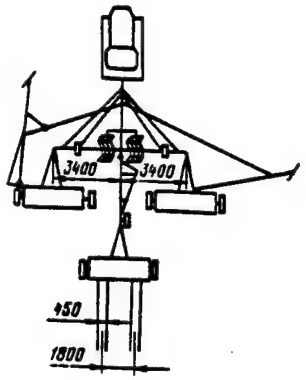


Figure 5. Layout of SZ-3.6 Grain Drill and Fertilizer Applicator

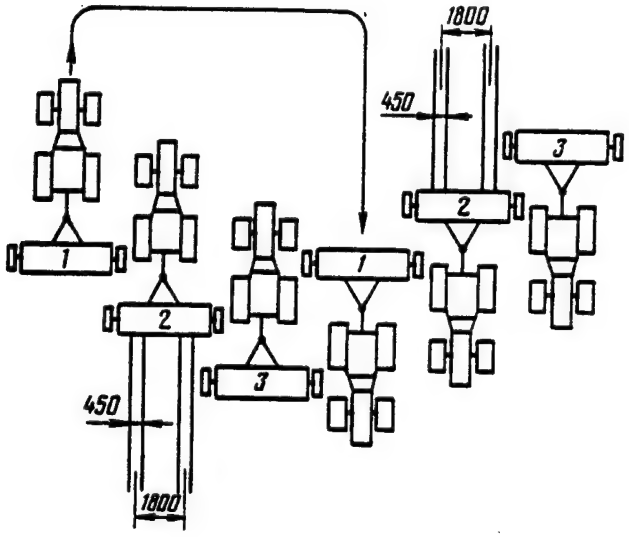


Figure 6. Movement of Single Drill Planting Units

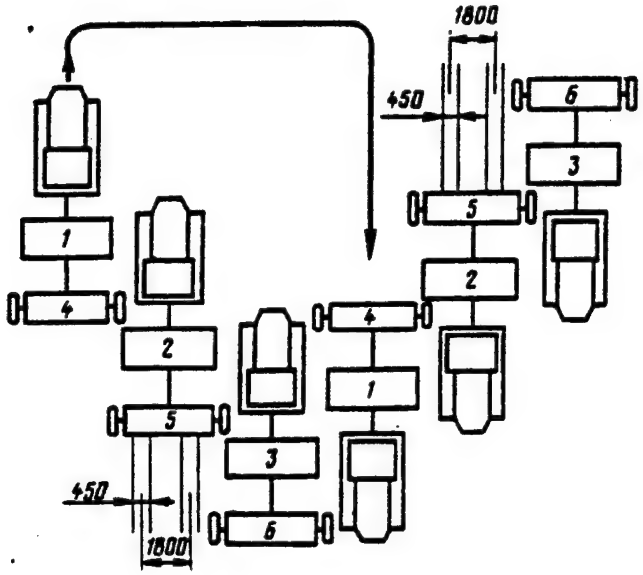


Figure 7. Movement of Tillage-Planting Units 1,2,3 -- RVT-3.5 [Levelling Roller]; 4,5,6 -- SZ-3.6 Drill

The wheel tracks need systematic care. They are broken up and kept weed free. Equipment should not travel the wheel tracks when the soil is waterlogged.

The times for spring and summer top dressing of winter crops with nitrogen fertilizer are determined by the plant development phase. The first top dressing is made in the spring during the tillering phase, prior to the beginning of the stem extension stage, the second, during the formation of the second-third node, and the third during florescence. If the soil is sufficiently moist, up to 30 kg of nitrogen (active ingredients) are applied

during the first top dressing, in the second, 60 and in the third, 30. The last top dressing is made to increase grain protein and gluten content.

Dosages are adjusted according to results from soil and leaf diagnoses made by chemicalization stations. The optimal content of nitrogen in winter wheat leaves during tillering is 4.9-5.5 percent, and in the stem extension phase, 3.9-4.5 percent.

Top dressing with nitrogen fertilizers is performed with 1-RMG-4 and RUM-5 machines, with 1,800 mm wheel spacing. Prior to application, the spreader is carefully set for 10.8 or 12 m broadcast width. Enough fertilizer to apply the set dosage to the area is loaded on the unit. Deviations from the set dosage should not exceed 5 percent. Broadcast should not exceed the planting units' sweep by more than 5 percent.

The protection of plants from pests, diseases and weeds is the basis of intensive agriculture. This requires constantly observing crop condition and determining treatment times. Delays of 1 or 2 days in this work sharply reduce the effectiveness of protective measures.

After planting the fields are treated with 250-300 g (active ingredients) of the herbicide simasine per hectare. Prior to winter, to protect against snow mold and to lessen infections of root rot, mildew and other diseases, 0.5 kg of fundazol is applied per hectare. In the spring, prior to the stem extension stage, to protect against weeds, 2 kg of a mixture of ammonium salts and 2,4-D per hectare, and 0.3 kg of lontrel preparation or 2.5 kg of dialene preparation per hectare are applied. In order to prevent winter wheat lodging, the application is: a mixture of 3 g of TUR [not further identified] and kampozan (2 liters per hectare; to prevent winter rye lodging -- 4 liters of kampozan per hectare. At the onset of infestation by all types of rusts (usually the end of May) 0.6 kg of a baylet preparation is applied per hectare, and if rust appears at a later date, the same dosage is applied a second time. Voltan (2 kg of preparation per hectare, is applied upon the appearance of aphids, thrips or other pests.

OPSh-15 sprayers, with wheel spacing set at 1,400 mm are used to apply herbicides or other plant protection agents. If the wheel spacing is 1,800, the sprayers are reequipped. Their semi-axles are removed and their width increased. In order to treat crops at a later phase in their development, the sprayers' road clearance is increased to 500 mm -- SZ-3.6 grain drill wheels are installed on the OPSh-15 sprayers. The attachment nuts are countresunk into the wheel disks.

The effectiveness of herbicides and other chemicals is reduced considerably if they are applied in windy weather. In such days maximum use should be made of morning and evening hours. To reduce dispersion, the sprayer nozzle is set as low to the ground as possible.

The observation of technological discipline, the proper use of integrated pest management systems and fertilizer eliminates weed infestation, disease, and crop lodging are guarantees good harvests of winter crops.

The best results are obtained on those farms which have set up permanent mechanized links or detachments working under collective contracts. They have a definite amount of land, the necessary equipment and limits on working time and material resource outlays.

Practice has shown that the successful introduction of intensive cropping technology requires operational work by Selkhozkhimiya associations. They should assure the timely delivery of mineral fertilizers and chemical agents. There should be improvements in grain drills. Also needed are boom type spreaders which can more evenly apply fertilizer and high quality sprayers. All these should have the same wheel spacing and working sweep.

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TILLING AND CROPPING TECHNOLOGY

UDC 631.531.1

SEED GROWING FUNDAMENTALS IN URALS DESCRIBED

Sverdlovsk URALSKIYE NIVI in Russian 11 Nov 85 pp 18-20

[Article by S. Chazov, head, Department of Selection and Seed Growing, Sverdlovsk Agricultural Institute, professor; P. Brevnov, chief, Department of Seed Growing, Sverdlovsk Oblast Agricultural Administration; and V. Yeliseyev, senior agronomist, Department of Seed Growing: "The Organizational Principles of Commercial Seed Growing in the Urals"]

[Text] Intrafarm specialization in seed growing began to be introduced back in the 1960's. In it, at each kolkhoz and sovkhoz there should be specialized brigades and departments which grow varietal seeds sufficient to fully meet the farm's own requirements, and to fulfill procurement plans for state resources.

The Urals are characterized by broad agroclimatic diversity. This is manifested in various solar radiation and thermal regimes, in precipitation and in the beginning and duration of the vegetative period. According to data for several years, the northern and mountainous regions of the Urals (Perm and Sverdlovsk oblasts) have total positive temperatures during the 10 degree period ranging from 1,200 to 1,600 degrees C and GTK [hydrothermal coefficients] of 1.4...1.9, and the frost free period is from 70 to 100 days. In the steppe regions of the southern and southeastern Urals (Chelyabinsk and Orenburg oblasts) the sum of positive temperatures during this period ranges from 2,400 to 2,600 degrees C and the GTK is 0.6...0.9. There is an increased incidence of dry winds and droughts. Even within oblasts in the Urals there are quite substantial variations in heat and moisture supply. This results in grain with differing seed qualities.

In this huge region, covering the tundra in the north and the dry steppes in the south, a goal was set to determine zones of optimal seed growing, and to establish regions not suitable for producing certified seed every year.

Such research began in 1970 in Perm Oblast and is now continuing in Sverdlovsk, Chelyabinsk and Orenburg Oblasts. (See table)

Ecological Diversity in the Quality of Urals Spring Wheat and Barley Seed

Seed Growing Zone	Laboratory Germination rate (%)	Initial Growing Energy		Field Germination rate (%)	Yields q/a
		Number of Spouts	Weight per 100 sprouts (grams)		
Perm Oblast (4 year average) Norren Wheat					
northern (taiga)	89	84	5.5	55	25.6
forest-steppe	93	91	6.6	70	28.9
Standard normal distribution 0.05	--	--	--	--	0.3-1.9
Sverdlovsk Oblast (3 year average) Srednuralskaya Wheat					
mountain-forest	93.3	85.7	10.4	82.1	23.8
forest-steppe	97.5	94.8	12.0	90.0	25.5
Standard normal distribution 0.05	--	--	--	--	1.4-1.5
Moskovksaya-35 Wheat					
mountain-forest	85.3	79.0	10.6	68.4	26.3
forest-steppe	97.4	93.2	12.1	86.2	32.6
Standard normal distribution 0.05	--	--	--	--	1.6-5.3
Krasnoufimskiy-95 Barley					
mountain-forest	92.0	85	7.0	80	57.1
forest-steppe	98.0	95	8.0	90	59.2
Standard normal distribution 0.05	--	--	--	--	0.9-1.6
Chelyabinsk Oblast (4 year average Lade Wheat					
mountain-forest	94	89	6.8	72	35.3
southern forest-steppe	98	91	8.3	81	37.9
Standard normal distribution 0.05	--	--	--	--	0.8-2.1

[Table, continued]
Ecological Diversity in the Quality of Urals Spring Wheat and Barley Seed

Seed Growing Zone	Laboratory Germination rate (%)	Initial Growing Energy		Field Germination rate (%)	Yields q/a
		Number of Spouts	Weight per 100 sprouts (grams)		
Strela wheat					
northern forest-steppe	96	98	8.5	73	38.8
southern forest-steppe	99	97	11.2	79	40.2
Standard normal distribution 0.05	--	--	--	--	0.9-1.2
Krasnoufimskiy-95 Barley					
mountain-forest	93	88	8.2	62	39.3
southern forest-steppe	98	96	9.5	82	45.5
Standard normal distribution 0.05	--	--	--	--	1.8-3.5

This research was conducted for three spring grain crops (wheat, barley, oats) and, in Orenburg Oblast, for millet and Sudan grass.

From the table it is obvious that the taiga (northern) and mountain forest regions of Perm, Sverdlovsk and Chelyabinsk, the northern forest-steppe of Chelyabinsk and Orenburg oblasts are the most unfavorable for producing seed wheat with good yield qualities.

In Perm and Sverdlov oblasts, even the laboratory germination rate in the indicated seed growing zones varied by 4...12 percent, including 4...5 percent for early maturing seed and 11...12 percent for midseason maturing seed. In the determination of initial growing energy this difference also increased for field germination and ranged from 8 to 18 percent. For Moscow-35, a midseason maturing variety, it was at a maximum. During these years the availability of heat in the northern regions of Chelyabinsk Oblast was less favorable than the multi-year average. Therefore, differences in laboratory germination rates were minimal. However, an analysis of all data indicates that laboratory germination rate is not a full characteristic of seed quality. Even germinative energy in these two oblasts during unfavorable seed growing conditions was 6...13 percent lower in Lade wheat. Because of this there were substantial differences in the energy of initial growth, while field germination rates differed by approximately the same ammount as germinative energy.

The seed with the best yield qualities was from the forest-steppe zone of Perm and Sverdlovsk oblasts, the southern forest-steppe of Chelyabinsk Oblast and the central forest-steppe of Orenburg Oblast.

The barley experiment was conducted in two Urals oblasts (Sverdlovsk and Chelyabinsk). For this crop also, the most unfavorable were the northern (taiga and mountain forest) regions, while the most favorable were the Sverdlovsk forest-steppe and the Chelyabinsk southern forest-steppe.

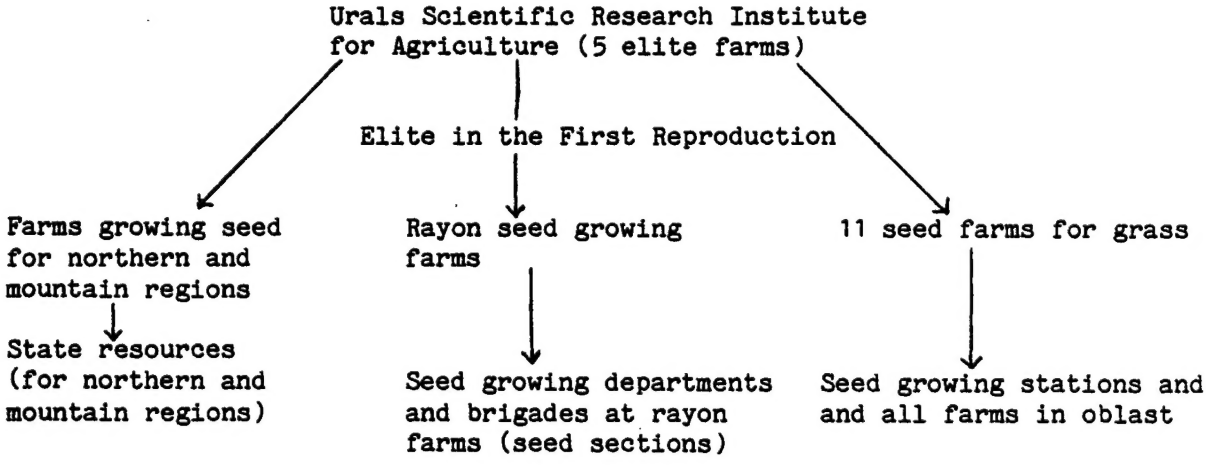
In addition to determining seed planting qualities and yields in the Urals there were also observations of pollen formation, the anatomical-morphological structure of grain and the physiological-biochemical evaluation of seed grown in various ecological conditions (Sverdlovsk Agricultural Institute).

All these observations to a considerably extent explain the causal linkages in the variability of seed yields in an ecological perspective. In addition to biological research to find the organizational basis for seed growing, there were also calculations of the economic efficiency of hauling seed from optimal zones to zones of unguaranteed seed growing.

Calculations were made for specific farms in the Urals. For example, in Sverdlovsk oblast the use of oats seeds hauled in from the forest-steppe in the northern regions (the Kashayskiy Sovkhoz) produced 12 rubles 60 kopecks of conditional net income per hectare.

The results were taken into account in organizing industrial seed growing in Urals oblasts. Oblast party and soviet organs in the zones for optimal (stable) seed growing chose specialized seed growing farms which were to supply northern and mountain regions with seed.

With the establishment of a new system for agriculture's management (the agro-industrial complex), in recent years the scheme for seed growing in Urals oblasts has been re-examined. (See scheme)



This is how it appears in Sverdlovsk Oblast (approved by decisions of the Sverdlovsk Oblast Soviet of People's Deputies in May 1983).

Three basic directions have been determined for grain crop seed growing. The first is regionalized seed growing farms. Their task includes the propagaation of elite seed for grain and pulse crops up to the first and second reproductions and their sales in accordance with an approved plan for varietal rennovation and replacement for all farms in the region once every five years to completely supply seed from seed growing departments or brigades (seed sections). This makes up one-fourth of total demand for grain seeds and one-third of pulse seed at each farm. From 1 to 4 specialized seed growing farms have been set up in each rayon, depending upon the size of the area planted, the condition of the material-technical base and a number of other circumstances.

For this work to be conducted in a planned manner, three documents (accounts) are drawn up for each rayon: annual demand for elite seeds and first reproduction seeds (seed sales plan for rayon specialized seed farms); each farm's demand for first reproduction seeds; the rayon plan for variety renovation and replacement, which is given to each farm.

The second direction for grain and pulse seed growing delineates specialized seed growing farms (the Tavrinskiy and 50 Years of the USSR Sovkhozes). Their task is to produce grain and pulse varietal seeds for northern and mountain regions in the oblast.

The third direction in grain and pulse seed growing (it is not included in the scheme) is the production of seeds for scarce and promising varieties by base farms' seed sections, which have been given production and sales plans.

The introduction of the new system of seed growing in Sverdlovsk Oblast began in 1984. Jointly with the Department of Selection and Seed Growing at the Sverdlovsk Agricultural Institute, the Oblast Administration's Seed Growing Department developed and gave to all rayon agricultural administrations and seed growing farms a methodology for calculating seed growing areas and compiling varietal renovation and replacement. They then worked out conditions of socialist competition for grain and pulse seed growing farms and specialized seed farms and seed growing stations for perennial grasses. The Tavrinskiy Sovkhoz in Krasnoufimskiy Rayon won first place in the socialist competition among seed farms for growing grain crop seeds. It obtained more than 50 percent certified seed in its gross harvest and fulfilled, by 240 percent, its plan for the sales of grain and pulse seeds in the first and subsequent reproduction. Output of first reproduction seed per hectare was: grain -- 13.1, peas -- 10.3 and vetch -- 6.0 quintals per hectare. It also fulfilled the plan for stockpiling winter and spring grain and pulse seeds in the main, insurance and carry-over stocks.

The collective at the Tavrinskiy Sovkhoz was given bonuses totaling 1,000 rubles, and given rights to buy, without waiting, UAZ-469 cars. The chief agronomist, S. K. Yegorshin, was given a monetary bonus.

Among the grain complexes, the victor was the collective at the grain base for the Zarya Sovkhoz in Achitskiy Rayon -- 50.5 percent (3,387 tons) of its gross

harvest was certified seed. Grain base brigade leaders and 15 shift leaders were given bonuses.

In 1984, the following farms worked better than others and overfulfilled their plans: the Tavrinskiy and 50 years of the USSR Seed Farms in Krasnoufimskiy Rayon, the Zarya Sovkhoz in Achitskiy Rayon and the Aromashevskiy Sovkhoz in Alapayevskiy Rayon. Targets were not met by the Yuvinskiy, Byngovskiy, Nevyanskiy, Glinskiy, Nitsinskiy and Sladkovskiy Sovkhozes, which did not sell a single quintal of seed to farms in the region. Some of their crops died and they could not even supply themselves with elite planting material.

The obispolkom targets were not fulfilled by Bogdanovichskiy and Shalinskiy Rayons, where elite seeds were sold to all farms, but not to seed farms.

Seed growing farms mainly involved in producing seed grain for northern regions, have, for the most part, handled their jobs. However, grain receiving points have not accepted these seeds. They must be sold directly to customer farms.

One should note that in July 1984 the Oblast Agricultural Administration published an order concerning seed stockpiling in the interrayon insurance stocks. However, only 2 out of 8 administrations indicated in the order have done this: Krasnoufimskiy and Achitskoye, while Kamyshlovskiy has partially done it. As a whole, the seed stockpiling plan for the exchange stocks was only 37 percent fulfilled.

Base farms have not received clear instructions on the production and sales of scarce and promising varieties. They are not capable of doing this. As a result, an important direction in seed growing is still being ignored.

For many years the results from seed growing in the oblast have pointed to the need to create a permanent oblast insurance stock of seeds. It should be organized through the production of seeds in rayons favorable for growing them (the eastern and western forest-steppe) and at specialized seed growing farms, following the example of Lvov Oblast in the Ukraine. These farms -- seed enterprises -- should keep their own accounts and be directly subordinate to the Oblast Agricultural Administration. The oblast insurance stocks should be 50 percent of requirements for grain and cereal grasses and 100 percent of pulse crops. It is also necessary to constantly strengthen seed growing's material and technical base.

These two essential conditions will assure the steady availability of seed year after year and a high percentage of the best new regionalized varieties.

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